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We are informed that at the present time much interest is expressed by French engineers in American methods of concentration, and especially in the use of concentrating tables, such as the Bartlett, the Wilfley and others. This is partly the result of the exhibits made at Paris; but some of the interest is due also to the accounts of the results accomplished here which have been published. The methods referred to are comparatively new to mining engineers in France, and it would seem that an opportunity is presented to our engineers and manufacturers to extend the use of our machinery of this class abroad.

The latest news from South Africa reports that complete collapse of the organized resistance to the British forces which was to be expected after the flight of President Kruger. Apparently the remaining Boer commandoes have gone to pieces and scattered to their homes, leaving behind such of their arms and stores as they could not carry with them, while a number have taken refuge in Portuguese territory. Probably there are some scattered bands which may give some trouble, but there is no longer an army in the field. Under these circumstances it seems probable that the return of civilians to Johannesburg will be permitted before long, and that the resumption of active work in the mines will soon follow. Our manufacturers and exporters of all kinds of supplies should hasten to profit by this fine opportunity to extend business.

An increased activity is shown at the present time among the silver properties of Montana. Two causes are attributed for this state of affairs. One is that the silver market has shown a healthy strength lately, coupled with the fact that since the great fall in silver in 1893, the smelters have materially lowered the charge for treating ores; and this is especially the case in Butte. Another reason is that some of the western smelters find a shortage of silicious ores, because the silver lead ores of the Coeur d'Alenes and British Columbia are produced now in greater abundance. This has caused the works at Tacoma and Everett to skirmish for silicious ores. A number of silver mines which have been idle in Butte and vicinity for years are either in operation or are making preparation to start up owing to this increased demand for the class of ore they can furnish.

"The Mineral Industry," Vol. VIII (for 1899) contained an interesting article on the extraction of copper from burnt pyrites by the Henderson process, as carried out at the works of the Pennsylvania Salt Manufacturing Company, at Natrona, Pa. We are advised by the officers of the company that this article can only refer to the conduct of the process as in vogue several years since, and is not an accurate recital of the operation as carried on at this time. Also, that the figure of cost given is much less than that realized now or at any time in the actual carrying out of this process. All conditions governing the industry have changed in the last few years, and we hope, through the courtesy of the officers of the company, to be able to publish in the next volume of "The Mineral Industry" a full and accurate description of this plant and of the working of the Henderson process.

Some indications of what the British Government will do in the Transvaal is found in the appointment of a commission to consider the case of the various concessions and privileges which existed under the Government of the South African Republic. The chief of these concessions, to which the mine operators objected, was the dynamite monopoly, and closely following was the exclusive privilege held by the Netherlands Railway Company. The new commission is to consider the standing of these concessions, the circumstances under which they were granted, and the legal standing under British rule. There is hardly any doubt that the dynamite monopoly will be done away with; and some indication of the railroad future is given by the announcement that several branches and extensions are to be built at once. The Netherlands Railway Company will probably be able to retain its railroad, but other people will be allowed to build also.

A number of friends of Major L. I. Seymour, the eminent American mining engineer, who was killed at Zand River in the Orange River Colony in June last, have decided to erect a permanent memorial in his honor and to commemorate his services to the mining industry in South Africa. Major Seymour was an American engineer whose good work left its mark in mines and mills of the Witwatersrand, and the committee which has taken the matter in charge has decided that an appropriate memorial would be the establishment of a library at Johannesburg, to be known as the "Seymour Technical Library." The committee includes many engineers and mine owners in South Africa, Mr. Gardner F. Williams, manager of the De Beers Company, being the chairman. The secretary is Mr. Francis Drake, who has his office at present at No. 3 Mansion House Chambers, Cape Town. A considerable sum has been already subscribed to the fund. The plan adopted by the committee seems an

excellent one, and many friends of Major Seymour will doubtless be pleased to have the opportunity of joining in this commemoration of his high professional ability and admirable personal characteristics.

On another page we publish an article on the Smelting Corporations Works at Ellesmere Port, on the Manchester Ship Canal, England, which has been written for us by Mr. Julius L. F. Vogel. Mr. Vogel is intimately connected with the Corporation as a consulting chemist, more especially in the section devoted to the recovery of the zinc from the slag. We have from time to time referred to the Fry process for smelting zinc-lead sulphides, which the Smelting Corporation was formed to work, and we have criticised the policy of erecting gigantic works and buying enormous supplies of ores before the process had been demonstrated and worked out on an ordinary scale, though we always acknowledged the possibilities of the process. Mr. Vogel's account of the process and his views on the subject generally will therefore be of considerable interest to our readers.

When the Fry process was first initiated it was supposed that the sulphate of soda and oxide of iron were active agents in reducing the lead and silver, but according to Mr. Vogel's account these act solely as fluxes for eliminating the zinc. The special virtue now claimed for the soda is that it forms a slag which is fluid though containing a large percentage of zinc, while the reduction of the lead and silver is effected solely by the carbon of the fuel. In this connection it is important to note that the ores are now roasted before going to the cupola furnace, and that the sulphur contents are thus reduced to 5 per cent. Originally the preliminary roasting was not considered essential, so that this alteration in procedure also points to the revision of the chemical theory of the process.

AN ENORMOUS METALLURGICAL INDUSTRY.

In the "Engineering and Mining Journal" for September 15th we referred briefly to the statement made public by the American Smelting and Refining Company, and to the moderate profits there shown. Since then the company has, at our request, furnished us some particulars of the business done in its plants during the year. These show the scale on which its business is carried on. The first fiscal year of the company was not a full working year; nevertheless the quantity of ores smelted at its various plants was, in round figures, 1,500,000 tons; the fuel used was 600,000 tons and the flux 400,000 tons. The bullion refined was 163,000 tons, so that the total smelting charges amounted to 2,663,000 tons.

The output of the refineries for the year was 1,200,000 ounces gold, 40,500,000 ounces silver and 160,000 tons lead. The total value of these products was $64,000,000, of which the gold constituted nearly $25,000,000. The value of the refined products was about $4,000,000 more than that of the output of the same plants in the preceding year. The average value of the ores smelted was about $43 per ton, and the profit realized by the company was only about $2 per ton smelted and refined. For the single item of wages the company paid out $4,000,000 at its different plants.

It is evident that the American Smelting and Refining Company has thus far followed in its business the course which we outlined for it when the consolidation of the various plants was completed. It has sought, by moderate charges and in other ways to encourage the production of ores, while assuring its own position and profits by working as economically as possible and on a large scale. The result thus far has evidently been satisfactory.

THE ANTHRACITE COAL CASE.

The respective positions of the miners and the mine operators in the contest now going on in the anthracite coal region has been discussed in the press and elsewhere with so little apparent knowledge of the facts that it seems well to present some authentic figures which may serve to explain the conditions. These were discussed in the "Engineering and Mining Journal" August 25th last, and we now supplement the statements then made by statistics drawn from the report of the State Mining Bureau of Pennsylvania for 1899, which has recently been issued.

The anthracite coal mines of Pennsylvania furnish about one-fourth of the coal supply of the United States; but, as we have frequently remarked, those mines present the unusual condition of a great and important industry which returns—except in a few exceptional cases—no direct profit upon the large amount of capital invested in it. All the profit realized has been in the transportation and marketing and not in the mining of the coal.

To show, in the first place, the extent of the industry, we give in the accompanying table the total production of marketable anthracite, stated by inspection districts. We may note in a general way, without defining the lines exactly, that the First, Second, Third and Fourth districts cover the Wyoming and Lackawanna regions in the upper or northern end of the field; the Fifth and Sixth, the Lehigh Region, and the Seventh and Eight the Schuylkill and Lykens Valley Regions. We may note also that all the figures relating to anthracite are given in long tons, of 2,240 pounds. The table of production in 1899, giving also the disposition of the coal mined, is as follows:

District:	Shipped.	Used at mines.	Sold at mines.	Total.
First	6,823,205	467,122	84,244	7,374,571
Second	6,173,718	361,049	239,691	6,774,458
Third	6,159,788	566,472	128,451	6,854,711
Fourth	7,667,531	740,327	240,294	8,648,152
Fifth	5,370,331	704,194	116,502	6,191,027
Sixth	6,556,088	888,274	94,042	7,538,404
Seventh	5,456,091	730,121	122.122	6,308,334
Eighth	3,744,149	514,351	86,067	4,344,567
Totals	47,950,901	4,971,910	1,111,413	54,034,224
Per cent.	88.7	9.2	2.1	100.0

The output in 1899 was the largest ever made in a year, and exceeded that of 1898 by 6,889,050 tons, or 14.6 per cent. It is usually estimated that the quantity of culm and waste is equal to that of the sized and marketable product; so that the production last year required the handling of nearly 110,000,000 tons of material. The operation of an anthracite colliery is by no means a simple or inexpensive matter. Apart from the hoisting machinery which is required as in all mines operated at any considerable depth, ventilating appliances of the best class are required, since the mines are excessively fiery and the risk of explosion always great. The sizing and preparation of the coal for market requires expensive machinery. The mines, as a rule, are very wet and pumping is a large item of expense. This is illustrated by the following table, which is based on the statistics of the report above mentioned, and shows the total work done by the pumps in the anthracite mines last year:

District:	No. pumps.	Capacity per min.	Water raised per min., gals.	Water raised per year, tons.	Tons water to 1 ton coal.
First	85	59,353	40,740	76,474,800	10.4
Second	87	43,815	26,463	49,674,831	7.3
Third	123	76,322	47,572	89,299,440	13.0
Fourth	111	80,443	38,905	73,030,243	8.1
Fifth	181	156,778	84,314	158.269,423	25.6
Sixth	140	87,386	42,012	78,862,526	10.5
Seventh	183	68,773	43,055	80,820,448	12.8
Eighth	69	58,760	26,469	49,686,094	11.4
Totals	979	631,630	349,530	656,117,805	12.1

This shows that it was necessary last year to raise 12.1 tons of water for each ton of coal mined; the lowest figure for any of the districts being 7.3 tons, while in the Fifth District it rose to 25.6 tons. The pumping, it must be remembered, is a continuous expense, as the pumps must be kept going whether the colliery is shipping coal or not.

As to other machinery in use, we find that there were 3,754 steam engines of all classes, aggregating 288,100 horse-power. There were also 979 pumps, as shown in the table herewith. There were 405 locomotives used in the mines, besides 15,690 horses and mules.

The number of employees in and about the anthracite mines last year and their average working time are given below, with some further averages derived from the figures given in the report:

District:	No. employees.	Av. days worked.	Tons coal per man.	Tons coal per day's work.
First	17,143	174	430	2.5
Second	15,419	175	440	2.5
Third	17,150	167	400	2.4
Fourth	23,668	169	365	2.2
Fifth	14,293	192	433	2.3
Sixth	19,905	176	379	2.2
Seventh	20,317	189	310	1.6
Eighth	12,682	199	343	1.7
Total	140,583	180	384	2.1

It will be seen that there is a considerable difference in the average quantity of coal produced to a day's work, the Lackawanna mines showing the highest figure, 2.5 tons; while in the Schuylkill mines it fell to 1.6 tons. In the latter we find also the highest number of working days.

The reports do not give the nationalities of the miners and laborers employed in the anthracite collieries; but an indication is given by the lists of those killed and injured by accident. In this we find no less than 18 different nations represented, including Americans, Poles, Irish, English, Welsh, Austrians, Hungarians, Russians, Slavs, Greeks, Italians, Scotch, Germans, French, Swedes, Bohemians, Lithuanians and Spaniards. This is certainly a cosmopolitan list. The largest number of casualties reported was to Poles, and following in numerical order we find Americans, Irish, English, Welsh, Austrians and Hungarians. It has frequently been stated by mine inspectors that foreign miners are more liable to accident, partly because they are as a rule more ignorant and consequently more reckless; and partly because they do not clearly understand warnings and directions given them. It may be, therefore, that this list is not altogether a correct index to the proportions the different nationalities bear to the total number of miners. It is, however, a well-known fact that for years past Poles and men from Eastern and Southern Europe have been gradually replacing the Irish, Welsh, English and Americans who formed the working force in the anthracite

regions 15 years ago. The newcomers on their first arrival were generally satisfied with wages which appear high in comparison with those they received at home; but they soon learn the current rates and insist upon them. This European element is usually the most active in a strike and the most ready to resort to violence in case of a contest.

The figures of the Pennsylvania report do not give the total wages, nor the average wages paid. The case of the Philadelphia & Reading miners may, however, be taken as a representative one, where wages are not far from the average. These miners have been paid for a number of years past under an agreement by which wages are controlled by the selling price of coal at Port Carbon; this price being fixed by taking the average of several collieries drawn by lot each month for the purpose. The base rate of wages is $12 per week when the selling price is $2.50 a ton at Port Carbon, an increase or decrease of 1 per cent. on the base rate of wages to be made for each increase or decrease of 3 cents a ton in the selling price. For most of the current year the wages have been near base rate; in 1899 the average varied but little from it, bieng in some months below and in others above the base. At this rate the earnings of the miner would be not far from $600 a year, if he had continuous work. But, unfortunately—and here comes one of the chief complaints of the miner—the work is not continuous, and the average income of the miner falls much below that amount. In the Schuylkill Region, where many of the Reading collieries are, the average number of days worked varied, as shown above, from 189 to 199. Taking the average of these, or 194, the income of the average Reading miner last year was about $388 a year—certainly not a large one. For the whole anthracite region the number of days worked was 180, which would give, at the Schuylkill rate, total wages of $360 a year, or $30 a month.

The question of the labor supply in the anthracite region is the most difficult of all those involved in the present discussion. The policy of the operators has been all along to keep the full force partially employed, and to limit production when necessary, not by shutting down some of the collieries and discharging the men, but by running all the collieries on short time. It is, of course, to the operators' advantage to have the surplus force ready to crowd production when the demand for coal is large; but it works directly against the interest of the men, keeping down their average wages and inducing competition in the labor market. It is easy to say that the miners could better their condition by leaving the district; but it is not easy in practice to arrange for any such exodus. There is no doubt that with the present facilities and the working forces now in the region, the output of anthracite could be kept up to 6,000,000 tons a month or over. This would mean the mining of 75,000,000 tons a year, which is one-third more coal than found a market in 1899—a year of great prosperity and demand—and one-half more than in 1898. As long as these conditions exist there will be discontent in the anthracite country. Higher wages, moreover, would attract more men into the region and make matters still worse than they are at present.

As the price charged by the companies for powder has been prominently referred to in the miners' complaints, a few figures on this point will be of interest. We find from the report that the quantity of explosives used last year was as follows:

District:	Kegs powder used.	Tons mined per kg.	Lbs. dynamite used.
First	244,866	30.1	121,080
Second	237,891	28.5	113,829
Third	210,320	32.6	266,688
Fourth	215,209	40.2	392,868
Fifth	107,172	57.8	1,206,368
Sixth	154,169	48.9	450,914
Seventh	139,724	45.1	541,429
Eighth	63,340	68.6	556,241
Total	1,372,691	39.4	3,649,417

Black powder is the explosive which the miner uses in breaking down coal; the dynamite is used in dead-work, opening galleries and the like. In our previous article we referred to the price of powder and the agreements under which the present charges were fixed. We may add that while the price is apparently high, there is much to be said on the side of the operators. Too cheap explosive is a detriment in many ways, and experience has shown this, not only in the anthracite country, but elsewhere. Costly explosive not only means more care in its use, it means also better mining. The miner will take more care in placing his holes to the best advantage, and the coal will be broken down in better condition. In such ways, the high price of powder may be an advantage to the miner as well as the operator, while a reduction would mean an increase of carelessness, waste and possibly accident. This assumes, of course, that the rate of wages paid is large enough to permit the high price of powder; and in this case the wage rate and present price of powder were agreed on at the same time.

Although the report does not, as we have already said, give any statistics as to coal miners' earnings, the data accessible indicates that wages at the collieries during the past year have amounted to about 25 per cent. of the selling price of coal at tidewater. The transportation may be reckoned at 40 per cent. of that price, as that is the rate which the carrying companies charge individual operators and mining companies. This leaves the operator only 35 per cent. of the selling price from which to meet the expenses of dead-work, hoisting, pumping, breaker machinery and smaller operating charges, as well as royalties, rentals, interest on investments and renewals. His case is not an enviable one, and the ability to meet any increased wage cost is decidedly limited. All these facts should be taken into account in forming a judgment of the merits of the case, and the public should see that there is at least as much to be said on the operators' as on the miners' side.

NEW PUBLICATIONS.

"The Copper Mines of Butte and the Amalgamated Copper Company." By George L. Walker. Boston: The "Boston Financial News." Pamphlet; pages, 32. Price, 25 cents.

This pamphlet is in large part a republication of letters written from Butte by the author, and published from time to time in the "Boston Financial News." The letters were apparently written for the information of speculators, and for effect on the Boston stock market. Their value is slight, as they contain no new information and show no special technical knowledge. The writer treats of familiar matters in a sketchy way, and shows a decided inclination in favor of the Amalgamated Copper Company and the mines which it controls, with a disposition to belittle all other interests in Butte.

"Geology of Dubuque County, Iowa." By Samuel Calvin and H. F. Bain. Des Moines, Iowa: State Printer. Pages, 266; with maps and illustrations.

This is one of the excellent monographs which the Iowa Geological Survey has issued from time to time giving the results of the surveys and examinations made in different sections of the State. Dubuque County presents some points of special geological interest, which are carefully studied and worked out. The Iowa Survey has always paid especial attention to economic geology, and its reports have been of much service in calling attention to the mineral resources of different sections of the State and their possible development. Iowa is not a mining region, and its chief interests have been agricultural, but it has important mineral deposits, chiefly of coal and clay, building stone and other materials of construction, which already constitute a considerable addition to its material wealth, and will doubtless add much more in the future. The work of the Survey has been thorough and useful on economic as well as scientific lines; and this monograph is another proof of its excellent and practical nature.

"Prehistoric Implements. A Reference Book." By Warren K. Moorehead. Cincinnati, O.: The Robert Clark Company. Pages, 432; with 621 illustrations. Price, $3.

The study of the relics of the prehistoric inhabitants of America is one which interests many people, and this book should find many readers. The author does not claim to be a scientific antiquarian or ethnologist, but he has done a great deal of exploration work in the direction covered by his book. With the assistance of many correspondents he has collected a great mass of information with regard to the relics left by the early inhabitants of this country. The number of these relics which have been brought to light in various sections is very large, and much work has been required to group and classify them. All of those about which reliable information could be secured are here described and illustrated. So far as possible they are classified and referred to different types and groups. The first object of the book is to inform the student and beginner—for whom the book is intended rather than for the scientist—and its secondary purpose is to stimulate the study of specimens and to call attention to types hitherto unknown. It also gives space to the comparison and co-relation of types from different parts of the country. It is a most interesting work, and many readers who are not familiar with the subject would do well to read it. Those who have studied in this direction will doubtless welcome it.

"Les Richeness Minerale des Colonies Francaises." By L. Pelatan. Paris, France, and Liege, Belgium: H. Le Soudier. Pages, 36; with maps.

This monograph, which was prepared especially for the Paris Exposion, is devoted to the mineral resources of New Caledonia. After a brief general account of the geology of the country, the writer proceeds to treat in detail of the different minerals which have been discovered, and of their present and possible future value. The island is widely known on account of its nickel mines, but in addition to these gold, silver, cobalt, copper, lead, zinc, antimony, manganese and chrome ores are known to exist; while outcrops of coal have been discovered, and a great variety of building and ornamental stones can be quarried. Thus far mines of nickel, cobalt and chrome ores only have been worked to any extent, but a number of concessions have been granted for other mines, and a beginning has been made. Thus one gold area has been prospected successfully and has yielded 203 kgs. of gold, though its systematic working has not yet been begun. Recent undertakings are on a concession from which zinc-lead sulphide ores have been taken; and on another which is said to be rich in argentiferous lead ores. New Caledonia appears to possess a remarkable variety of minerals, and will doubtless become in time a mining country of importance. Its progress has been delayed by its peculiar position as a penal colony, which has prevented free immigration, but this will probably be overcome in time, as the riches of the island are recognized.

BOOKS RECEIVED.

In sending books for notices, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"Progress of Forestry in the United States." By Gifford Pinchot. Wash-

ington: Government Printing Office. Pamphlet; pages, 14; illustrated.

"The Practice of Forestry by Private Owners." By Henry S. Graves. Washington: Government Printing Office. Pamphlet; pages, 14; illustrated.

"Summary Report of the Geological Survey Department of Canada for the Year 1899." Ottawa, Canada: Public Printers. Pages, 224; with maps.

"Information as to Mining in Rhodesia Supplied to the British South Africa Company." London, England: Published by the British South Africa Company. Pages, 412; with maps.

"Special Consular Reports, Volume XXI., Part I. Foreign Markets for American Coal." Prepared by the Bureau of Foreign Commerce, Department of State. Washington: Government Printing Office. Pages, 412.

"Statistische Zusammenstellung uber Blei, Kupper, Zink, Zinn, Silber, Nickel, Aluminum und Quicksilber. 1899." Compiled by the Metallgesellschaft. Frankfort-am-Main, Germany; published by the Metallgesellschaft. Pages, 74.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials will only be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

Chemists' and Engineers' Fees.

Sir: Dr. Ledoux's article on the habit of expecting professional service without fees reminds me of an incident in which shrewd counsel came from infant lips. A little girl having been several times taken shopping was one day in a store with her aunt, and importuned her to buy a toy. The lady said she had no more money. "What?" exclaimed the little one, with petulant surprise, "Don't you know about 'charge it'?"

The straight business course is first to know one's profession; second, to let other people know—to advertise it, and third, to know about "charge it," giving inquirers an understanding of what a service is worth—best in advance.

To encourage ideas that a service is gratuitous and then present a bill or plead for compensation "in forma pauperis" is neither dignified nor judicious.

The letter which Dr. Ledoux quotes is not, however, a bad opening for business. Such an inquiry can always be met by some off-hand advice costing no more than an effort of courtesy, with a reasonable explanation of the research, experiment and cost to the inquirer of a more definite and conclusive solution of his particular problem.

Charles H. Fitch.

Oak Park, Ill., Sept. 22d, 1900.

The Colorimetric Assays of Copper.

Sir: Permit me to discuss an article in your issue of September 15th, on the "Colorimetric Assay of Copper," reprinted from the "Transactions" of the American Institute of Mining Engineers. In his description of a modification of the old "Heine's blue test" for lead copper-bearing materials, Mr. Smith expresses a preference for freshly-prepared standards and cheap apparatus. This is more of a reversion to the old original method than my own, to which he refers, since I devised in 1897 something to cover the very point which we thought ought to be improved (but to which Mr. Smith seems to object)—a method for preparation and preservation of a permanent set of standards.

No doubt many busy Western assayers value any change in a method which will bring it to practical perfection as regards rapidity of color reading and avoidance of work, when many samples are to be tested daily. Mr. Smith notes that his color readings were compared with an electrolytic assay of another ore sample and that my electrolyses were made of the blue solution from the colorimetric assay. He omits, however, any reference to the important fact that in the next colume of tabulated results in my original paper*, gave the per cent. of copper (as determined by battery assay), remaining in the precipitate of hydrate of iron and silica produced in the color assay.

The sum of the per cents. of copper by electrolysis of the blue solution (ready for color), and the residues therefrom, gives the true copper contents of the original ore, without introducing the element of error of sampling, as Mr. Smith has done by testing two samples instead of one in each experiment. The experiments in my paper indicated also, by this method and arrangement, how near one may read the color of a known amount of copper in a solution, and how near that ammoniacal solution comes to containing all the copper originally present in the ore sample.

As in the color method for carbon in steel and the cyanide tituration of copper there must be, for the sake of accuracy, a strict adherence to uniform conditions, and agreement of tint or shade of color between standards and assays. A set of unchangeable standards containing a uniform excess of ammonia ought to permit closer work, since the tint of the color tests varies with increase of ammonia from purple to clear blue and even greenish blue.

If standards can be easily made so they are just as good for all practical purposes months afterward, is there any valid reason for the waste of time, etc., involved in making fresh ones each day? It is true that bottles made from selected tubing with tightly ground stoppers may be a little expensive for a private laboratory, but the price (about $1 each), would surely not be objectionable to a company when much is gained by their use. A set of 24 uniform bottles, in which the 200 c.c. marks do not vary more than ⅛ in. in height from each other, will allow 12 standards and 12 extras, and should last for many years. If standards of permanent nature are devised, both a strongly ammoniacal copper sulphate solution and containing bottles with tight glass stoppers have been found indispensable according to my experience.

If a chemist still prefers Mr. Smith's preparation of standards on every occasion, nothing more can be said in discussion of this subject.

George C. Heath.

South Lake Linden, Mich., Sept. 18th, 1900.

*"Journal" of the American Chemical Society, XIX., January, 1897, page 24 et seq.

THE TRANSVAAL CONCESSIONS AND MONOPOLIES.

The British Colonial Office has made public the text of the notice as to concessions in the Transvaal issued by the High Commission for South Africa on September 8th:

"Notice is hereby given that every concession granted by the late Government of the South African Republic will be considered by Her Majesty's Government on its merits, and Her Majesty's Government reserves right to decline to recognize or to modify any concession which may appear on examination not to have been within the powers of the late Government of the South African Republic having regard to any conventions or agreements made between Her Majesty's Government and the late Government of the South African Republic or to have been granted without proper legal authority or contrary to law or the conditions of which have not been duly complied with or which may appear to affect prejudicially the interests of the public."

The following notice has also been issued by the Commissioner:

"The Commissioners appointed to inquire into the concession granted by the Government of the late South African Republic hereby give notice that they will, in the first instance, inquire into the following concessions, namely: (1) Any concession conferring the sole and exclusive power of manufacturing, importing, or dealing in any commodity in the Transvaal; (2) any contract made with the Government of the late South African Republic under the scheme approved by the Volksraad resolution No. 1,871 of November, 1896; (3) any concession to the National Bank or any other bank or banking institution; (4) any concession or contract for the construction or working of any railway or public tramway or the public supply of water or light. The first sitting of the Commission will be held October 1st, 1900; notice will subsequently be given of the places of its sitting; all persons desiring to be heard should communicate with the Commission before the above date. Communications must be addressed to the Secretary, Transvaal Concessions Commission, Library Buildings, Cape Town. Concessionaires should send to the Secretary statements of any evidence which they desire to give, and will be required to produce the documents on which they rely translated into English and notarially certified in triplicate. Notice of objection to any concession should also be sent to the Secretary, together with short statement of any evidence which it is desired to submit."

MICA AND CORUNDUM IN BURMA.—"Indian Engineering" says that a license to prospect for mica near Manwe, Upper Burma, was given to an enterprising Chittagonian last year, but so far no mica was exported. Samples sent to England in 1899 were not very favorably reported on, but expert opinion was given that probably mica of better quality would be found further from the surface, and the Chittagonian is therefore prospecting deeper. In the rains there were about 400 people digging for corundum near Manwe, but the rain is said to have been exhausted and nearly all of the diggers left in the dry season.

SALT TRADE IN BURMA.—According to "Indian Engineering," until about 40 years ago locally manufactured salt was the principal source of supply in Burma. In Arakan and the greater part of Tenasserim the consumption is even now mainly of locally manufactured salt, while in the rest of the province and the Shan States foreign salt is used almost exclusively for home consumption and for fish-curing. In Upper Burma the production of local salt is almost entirely confined to the two districts of Shwebo and Sagaing, where it is the occupation of the very poorest classes. Foreign salt is taxed 1 rupee per maund, and the tax on implements used in local manufacture is intended to be an equivalent to the import duty. The article yields a revenue of over 14 lakhs of rupees. Local manufacturers are said to have so improved their methods of working as to more than make up for the enhanced duty. About 56 per cent. of the imported salt comes from England and 44 per cent. from Germany. German salt is cheaper and is said to be preferred in Upper Burma, doubtless on account of its lower price. The heavy duty, however it may have stimulated manufacturers to improve their methods of production, has transferred a large part of the fish-preserving industry from Burma to the Straits Settlements, where salt is untaxed.

PRECIPITATION OF COPPER FROM SOLUTION BY ZINC.—John C. Shengle and Edgar F. Smith have made some experiments in the precipitation of copper from solution by zinc. They are scientifically interesting and of some practical importance. A solution of pure copper sulphate was prepared and metallic zinc was obtained pure by the distillation method of Morse and Burton. The copper in the precipitate was determined by the battery method after dissolving in nitric acid. Zinc was determined in the liquid poured off the deposit of copper. In one experiment where 0.1739 g. of copper was present 0.1742 g. was found, while 0.0067 g. zinc was found. In a second experiment where the same amount of copper was present 0.1741 g. was found by analysis, while the precipitate contained 0.0027 g. of zinc. In the third experiment where the copper was increased to 0.2609 g. the battery gave 0.2612 g. containing 0.0033 g. zinc. Twenty-two precipitations were made with varying conditions; zinc was found in all the precipitated copper, but as this method, as a rule, gives concordant results owing to a balancing of errors, the small amount of zinc which was found included with the copper will not interfere to any serious degree with the analytical methods with zinc as a precipitant for copper so commonly used.

THE SMELTING CORPORATION'S WORKS AT ELLESMERE PORT, ENGLAND.

Written for the Engineering and Mining Journal by Julius L. F. Vogel.

The works of the Smelting Corporation which owns the Fry patents for the treatment of zinc-lead sulphides are now nearing completion, and already one set of plant is in operation. Some account of these works and the method of working the process will therefore be of interest. As is well known, the process consists of smelting the mixed sulphides in an ordinary water-jacket furnace with sulphate of soda and oxide of iron as fluxes. The lead and silver are obtained as bullion and the zinc goes into the slag. It was in 1895 that the first experiments on the process were tried by Mr. Henry E. Fry, at the works of his firm, Messrs. Fry, Everitt & Company, at Swansea. The work was afterward taken in hand by the Burnham Syndicate, and extensive trials were carried on for nearly two years, during which time some 20,000 tons of mixed sulphide ores were treated at a substantial profit.

It was then decided to start work on a larger scale, and the patents were sold to the Smelting Corporation, Limited, which was incorporated with a view to the erection of large works for carrying out the process.

FIG. 1.—SIEMENS FURNACES FOR PRODUCING ZINC OXIDE FROM SLAG—COOLING TOWERS ON THE LEFT.

The company was formed in March, 1898, and in August of that year obtained possession of a site of 60 acres on the Manchester Ship Canal.

The works were designed by Mr. W. B. Devereux, an American engineer, assisted throughout by Mr. Addie, who subsequently superintended their erection, and who is now acting as works manager. It will be noticed, too, that most of the machinery and general plant is of American make. The works, which at present cover only a portion of the ground owned by the corporation, are designed for three complete units, each capable of smelting 30,000 tons of mixed sulphide ore per annum. At present only one unit is complete, the remainder of the plant being still in course of erection.

The whole installation is designed on the most modern American plan, and all of the power is supplied by electricity which is generated at a central station, where two engines made by the E. P. Allis Company drive two continuous-current multipolar generators, each of 400 kilowatts capacity. The dynamos are of 250 volts tension, and the current is distributed from these by overhead cables to the motors, which are used everywhere that power is required. The electric machinery is all the work of the Crocker-Wheeler Company. The boilers which supply steam for this plant are of the Babcock & Wilcox water-tube type and are arranged in three batteries of two boilers each. The firing is done by automatic stokers fitted by the American Stoker Company. Two of these batteries are sufficient to maintain the full load, the third being in reserve. This power plant stands quite apart from the metallurgical plant, but close to the railway which brings the fuel supply.

The ore and other raw material are landed on the corporation's wharf direct from the Manchester Ship Canal, there being at all times 26 ft. of water, enough for sea-going vessels of 5,000 tons to come alongside. The unloading is effected by a Temperly traveling tower transporter capable of lifting 1½ tons gross load, driven by a 30-H.-P. enclosed electric motor. By this from 90 to 100 tons of ore can be handled per hour and transferred automatically to the different ore bins, near the wharf.

Close by is situated the crushing house, which contains one Gates standard No. 5 crusher, for rough crushing, and two sets of standard 15 by 36-in. rolls for finishing product to 3/16-in. size, together with the usual elevators, screens, etc., whereby the ore is handled without labor from first to last. This plant is driven by a 100-H.-P. motor.

From the stocks of raw material in the bins the ore can be automatically filled into trams and hauled to the calciners, where a preliminary roasting is given. The calciners are of the revolving-table type, made by the Godfrey Calciner Company.* A sector of the roof is left open to the air and plows are here situated, whereby the ore is turned over and over in contact with the air, as each portion of the bed passes the opening. The plows being thus fixed in the open air always remain comparatively cool, and the wear and tear on them is reduced to a minimum. The ore, too, being turned over in contact with the oxygen in the fresh air, accelerates the calcination. The grate is attached to the calciner at a spot adjoining one side of the sector opening, and the flames pass thence round the calciner to the other side of the opening, where they enter the flue leading to settling chambers and the big stack. The fixed roof is low so that the heat bears very effectively upon the ore on the revolving floor of the furnace. Eight of these calciners are now at work and two more are in course of erection. Each is capable of treating from 12 to 15 tons of ore per 24 hours, roasting from 20 per cent. and upward of sulphur down to 5 per cent. It is noticeable that all sulphide ore undergoes calcination preliminary to smelting according to the Fry method.

After calcination the ore passes to the briquetting machines, which are of Chisholm, Boyd & White's make, and are known as mineral presses. The briquettes are made as dry as possible to avoid introducing moisture into the cupola, and all the ore and fluxes are care-

*See paper by W. Blackmore, "Transactions of the Institution of Mining and Metallurgy," Vol. VII., 1898-99; pages 323-330.

fully briquetted before being fed into the cupola. The machines can turn out about 80 briquettes, 4 in. diameter and 2½ in. deep, per minute, or about 100 tons per diem.

The cupolas, of which only one of the three projected is at present erected, are of the steel water-jacketed type, made by the Colorado Iron Works, and have the following dimensions: Height, 18 ft.; area at tuyeres, 140 by 42 in. At first, cast-iron water-jackets were used, but these have now been discarded in favor of steel jackets, supplied by Fraser & Chalmers.

The smelting which is carried on in the cupola is the main feature of the process and of the Fry patents. In order to effect the complete separation of the lead and silver, as bullion, from the zinc, as slag, it was found that an alkaline flux was needed in contradistinction to lime or other alkaline earths. The use of such substances as carbonate or hydrate of soda would obviously be most expensive, but another salt of sodium, the sulphate, more commonly known as saltcake, could be obtained in large quantities, at a low price. As is well known, saltcake is the product obtained by roasting sodium chloride with vitriol for the production of hydrochloric acid. It has been largely used for the manufacture of soda ash according to the old Le Blanc process, but of late years the perfecting of the ammonia soda process, and still more recently of the electrolytic methods, has so much affected the Le Blanc process that it is no secret that it could no longer exist were it not for the profits derived from the hydrochloric acid and bleach.

The smelting carried out by the Burnham Syndicate proved conclusively that the use of saltcake and ferric oxide as fluxes brought about a complete separation of the silver-lead from the zinc and at the same time yielded a zinciferous slag containing upward of 22 per cent. of zinc, which, nevertheless, was perfectly fluid.

The charge used for the cupola consists of calcined ore, mixed with about one-quarter of its weight of saltcake and one-eighth of its weight of iron oxide in the shape of burnt ore, or "Blue Billy." These proportions are varied, naturally, to some extent, according to the composition of the ore. They are affected, too, by the amount of matte returned from the zinc department, which is being resmelted, but this subject will be dealt with more fully in describing the zinc department.

The composition of the slag from the cupola is naturally very complex, and it appears to be a mixture of sulphides and silicates. A rough analysis of a sample showed the presence of about 14 per cent. sulphur, 15 silica, 30 zinc oxide, 22 iron, 7 calcium oxide, and 7 per cent. sodium, with small quantities of lead, manganese and copper. The zinc appears to be partly in the shape of silicate and partly as oxide dissolved, or suspended, in the fluid slag. The iron and sodium seem to be sulphides. The above conclusions are founded on somewhat imperfect data, as only one sample of the slag was examined, and that roughly, but the important point is that the slag, containing in this case nearly 24 per cent. of zinc, could be run from the cupola and separated from the lead bullion. In the works laboratory careful checks are kept on the work, and doubtless the investigations made there will tend toward improvements in the smelting operations.

In spite of the use of alkaline fluxes no special precautions are needed in the lining of the furnace, and the cupola is in every way of the standard type, such as is used for smelting pure lead ore.

The argentiferous lead forms continuously in the small well connected with the main crucible by a siphon, and is ladled thence into molds for pigs. These, without further treatment, are shipped to desilverizing works, the corporation at present confining its attention to the production of argentiferous pig lead, which, as the "Stanlow" brand, is gradually becoming well known.

The slag runs continuously at each end of the cupola into settling pots, where any lead collects that may not have had time to settle into the crucible inside the furnace. The slag overflows from these into the usual conical molds, which are wheeled away and allowed to set. The pressure of the blast varies from 1½ to 1¾ lbs. per square inch, and the air supply is provided by one No. 7 Cycloidal blower, made by the Connersville Blower Company, and driven by a 100-H.-P. motor.

Some 2,500 tons of Broken Hill ore and slimes have, in less than two months, been treated in this cupola, the lead recovery being more than 90 per cent. in bullion; the silver recovered in the bullion has been 80 per cent., the remaining 20 per cent. being carried off with the zinc in the slag and recovered subsequently in the zinc department.

The slag from the cupola is broken up, but not crushed, and is fed in lumps mixed with small coal into open-hearth regenerative Siemens gas furnaces, of which a battery of four deals with the output of each cupola. They are made on the same principle as the steel furnaces, but with some modifications required by the volatile products from the furnaces, the recovery of which forms the main object of this operation, while in steel making the metal in the furnace is the principal object of attention. The regenerators have to be exceptionally large, or the quantity of zinc oxide would choke them.

The furnaces were designed and erected by Mr. Addie, the manager of the works. Since the plant has been at work improvements have been introduced in these furnaces, and arrangements are now being made to charge them through holes in the roof, care being taken that the chutes down which the slags are conveyed do not touch the edges of the holes and by their vibration shake the roof to pieces. Clay slabs are used to cover the holes after the charging. A saving of nearly 2 hours per charge will thus be effected, and the capacity of each furnace will be increased to a corresponding extent.

The lining is a mixture of dolomite and tar, well ground together under rolls. This is firmly rammed on the bed and repairs can be made with the same material between the charges while the furnaces are still hot.

The gases carrying with them the zinc oxide pass to towers made of steel boiler plate, down the outside of which runs a stream of cold water to cool them. (Fig. 1.) Thence, at present, they are forced by a fan direct to the wooden washers, where a continuous shower of water meets the gases as they pass and washes out the suspended zinc oxide, carrying it to the bottom of the washers, where it deposits as a sludge or mud.

The sludge from the washers is removed by a bucket conveyor passing underneath the tower and luted by a water trough. This sludge, after drying, is treated in Godfrey calciners to remove any sulphur it may contain, and after leaving the calciners the oxide is ready for the market. The trouble and cost of preparing the finished oxide from the sludge recovered in the washers led to further investigations on the subject of the condensation of the fume, and improvements have now been made in the plant so that the zinc oxide is condensed in a dry state. The dust chambers for this purpose are arranged with a series of baffles and pockets, the former to arrest the fumes and the latter to allow them to eddy and settle. By this means an even better recovery has been obtained than by means of the washers, and the latter are therefore being abandoned. This is one of the most important improvements yet effected in the process since operations commenced, and will effect a considerable economy in working the dezincifying part of the operations.

The slag tapped from the Siemens furnaces naturally contains all the metals not recovered in the bullion, or as zinc oxide, together with a considerable quantity of the original soda and iron used as the flux. This is run into a large slag pot (see Fig. 2), which holds a complete charge of a furnace (15 to 20 tons), and is erected on a suitable trolley in such a manner as to secure both locomotion and a tilting device for gradually pouring out the contents.

It is found that the slag in this settles into two distinct layers, which can, by careful pouring, be separated. Analyses of these have proved that the lower or heavier part is a species of matte, which contains practically the whole of the zinc and silver not already recovered, together with a fair percentage of iron and soda. The upper part is a worthless slag and is at once sent to the tip.

The matte is allowed to stand exposed to the air, and in about 24 hours it falls to a powder, or is immediately crushed. This powder is then calcined at a low heat to oxidize the sulphides, and subsequently is mixed with ore, briquetted and smelted. A further advantage it possesses is the fact that it increases the hardness and firmness of the briquettes, and as it contains a large percentage of soda and iron, it not only provides enough flux to smelt itself, but reduces the amount of flux which would otherwise be required in smelting ore. At the same time the remaining zinc and silver are recovered in the smelting operation in the same way as the metallic contents of the ore.

Of the zinc delivered to the zinc department 53 per cent. is being recovered in the form of oxide ready for market, and 17 per cent. in the form of matte, or a total of 70 per cent. As the oxide recovery was only effected in trial chambers, and these are now being perfected and enlarged, it is expected that a still better recovery will be obtained.

In order to facilitate the transport of materials there is a complete system of both standard and narrow-gauge lines running through the works. The standard-gauge is directly in communication with the London & Northwestern and the Great Western railway systems. The labor-saving appliances throughout the works will be, when completed, as effective as money can make them, and the costs of the various operations will be reduced to a minimum. The corporation has lately been investigating the possibilities of further extending the field of action into electrolytic production of spelter from the zinc oxide now being made. These experiments, which have been conducted in collaboration with the United Alkali Company, have been carried to the point of erecting a small factory, and the corporation's interests in this further development are being consolidated in the form of a subsidiary syndicate. It is interesting to know that those connected with this fresh development are very hopeful of success.

RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

Specially Reported for the Engineering and Mining Journal.

PRACTICE RULES REGARDING CONTESTING PATENTS ON MINING CLAIMS.—In an action to establish an adverse claim to a mining location, an objection that the action was not brought within 30 days after filing of the adverse claim, as required by the laws of the United States (Revised Statutes, section 2,326), cannot be raised by motion for judgment, or by a motion to strike an amended complaint from the files, but can only be presented by answer or special plea. And an issue that the action was not so brought cannot be reviewed when presented for the first time on appeal.—Providence Gold Mining Company vs. Marks (60 Pacific Reporter, 938); Supreme Court of Arizona.

CONSTRUING NOTICES OF LOCATION IN MINING CLAIMS.—A notice of location of a mining claim, which gives the course of the location as running a certain distance in a westerly and easterly direction from the point of discovery, until the boundaries are definitely located by monuments, reserves from entry by subsequent locators the surface area which might be included in any location so made that if a line be drawn lengthwise through the center of the claim from the west center end of same through the point of discovery to the east center end said line will lie between east 45° north and east 45° south from the point of discovery. In construing a notice of location there is no rule of necessity, such as exists in construing deeds, which requires that the terms easterly and westerly used without qualifying language shall denote east and west. If a locator, when posting his notice, in addition to giving the general course of his vein, places monuments at the center of each end line, thus giving definite notice to subsequent locators as to the meaning of his notice, he is bound by the same, and cannot afterward, during the time prescribed by law for perfecting location, change its course to the prejudice of intervening rights. Where a notice as posted did not definitely locate the eastern end, it was proper for the court to refuse to charge that, if the locator changed the easterly end of the claim from where it was first located by his notice to a point 800 ft. northerly, as fixed by the certificate, such change was void, and was not a substantial compliance with the notice.—Wiltsee vs. King of Arizona Mining and Milling Company (60 Pacific Reporter, 896); Supreme Court of Arizona.

COAL MINE MAPS.

Written for the Engineering and Mining Journal by L. C. Morganroth.

On visiting the engineering department of any of the large coal companies which have been in existence a number of years one is generally impressed with the immense number of maps in the office. Maps as old as the company, with their age plainly written on their faces, beside the fresh, clean maps of yesterday. One man's attention is required almost continuously to look after them and keep them in their proper compartments; while the proper indexing and recording forms the subject of much thought and study. Here is probably seen the accumulation of 40 to 50 years of map-making. Among them will be found maps of inestimable value, that could not be replaced at any cost.

The greater part of the maps, however, are not so valuable. Some, aside from the fact that they represent so much labor, are at the present day absolutely valueless and probably have not been consulted a dozen times since their completion. But the majority will be found to be those maps which contain something of value, pictures of tracts, streams, mine-workings, etc., yet the amount of paper consumed in making them is entirely out of proportion to the amount of information given. Such maps absorb the major portion of the storage room. They increase rapidly, and the space they occupy is entirely out of proportion to their value. This increase is in nine cases out of ten due to the haphazard way of their construction. Each map possesses something of value, but this is scattered over too many separate pieces of paper. The whole fault has been in the lack of system in the beginning, a complaint that can be brought against any of the older coal companies. In the early days maps were generally made as they were needed without any definite idea as to future use. Generally a map was wanted in a hurry of some surface or underground workings, some tract of land or stream. It is immediately drawn and contains all the information wanted at that particular time. Another map is made in the same manner, until in a very short time quite a respectable pile of drawings is on hand. But each drawing has been made to answer the purpose it was intended for at the time being, and little or no provision made for future work, and no system established by which information could be placed on one piece of paper instead of being scattered on numerous detached sheets.

One of these old coal companies, probably one of the oldest in the region, and one particularly fortunate in having vaults, drawers and rooms full of these maps of doubtful value, has about gotten through a house cleaning in this department and has established a system for future work which is admirable, at least for that particular locality. A description will best illustrate the principle I wish to convey. The company works a tract of land probably 30 miles long and 10 or 15 wide. The coal veins extend longitudinally the length of the tract and form a very deep basin. The crops of some of the veins extend far up the sides of the mountains which bound the coal basin north and south. To the north a second valley contains several large streams furnishing the water necessary for the operations. Here were located the impounding reservoirs and pumping stations. The mountain to the south of the coal basin, together with the adjacent valley, furnish a part of the timber used by the mines, while the cleared land has been sold for farming purposes. Two good-sized towns, together with several villages, occupy ground within the boundaries of the tract. The company operates its own railroad, which extends the entire length of the tract and connects with the main lines at either end. Before any reformation could take place in the mapping it was found absolutely necessary that the surveys themselves should first receive attention. The fragmentary condition of the maps naturally expressed the condition of the surveys. At different parts of the property different meridians were used. Errors were known to exist, but time had never been taken to hunt them up, and there was no absolutely correct map of the property as a whole. It was practically divided into several units, and while each was presumed to be correct in itself, the relation one bore to another was not positive. Hence, the most urgent need was a connected survey of the entire property. This was done by triangulation, the ground being particularly well adapted for it. The mountains bounding the coal basin north and south, terminating in rather sharp ridges, afforded excellent opportunity to sight from one to the other or to the valleys on either side. The stations of this survey were known as the prime stations and made as permanent as possible, stone monuments carefully centered being the rule. In the vicinities of collieries possibly a discarded mine axle with one wheel attached would be used. The State Geological Survey having several stations in the vicinity, this survey

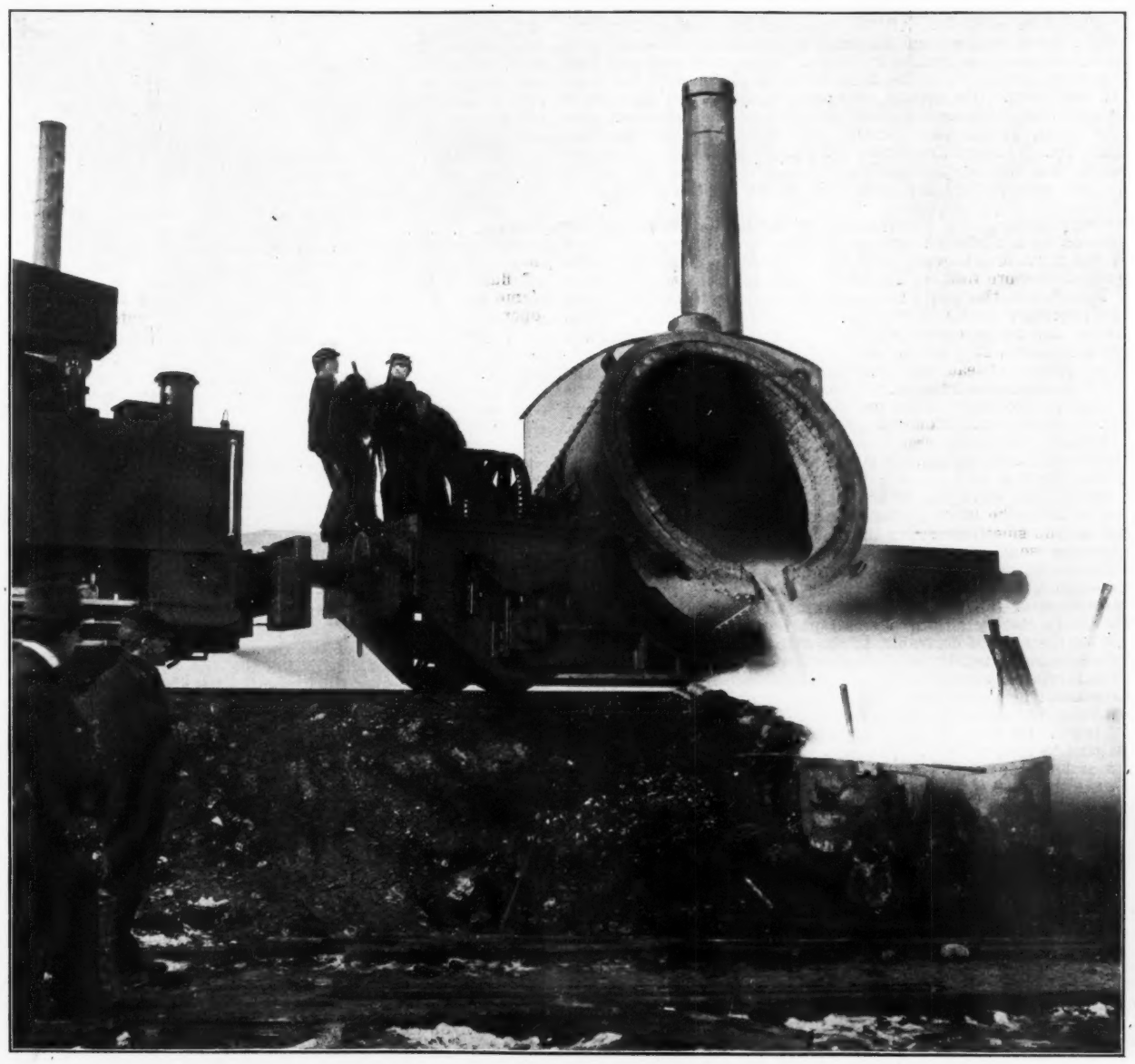


FIG. 2.—POURING ARGENTIFEROUS MATTE AFTER POURING OFF SLAG. SMELTING CORPORATION'S WORKS.

was put on the same base, so that any of the details of the State Survey could be readily incorporated. The next step taken was to locate the boundaries of the property, which was urgently needed on account of several disputes as to lines. This was the most tedious and arduous of all the work. Old deeds with all their vagueness and inaccuracy of the descriptions had to be consulted. The work of tracing the lines on the ground was made doubly hard by the obliteration of many or all of the lines, together with many of the corners. Finally the lines surrounding the entire property were established to the satisfaction of all concerned. This time the corners were made as permanent as possible, while the lines connecting the same were well blazed and painted wherever possible. All the corners were carefully located by surveys from the prime stations so that in case one should be destroyed it could be easily re-established.

Sufficient information now being at hand, a property map was constructed, the purpose of which was to show the entire amount of land owned or controlled by the company. On it were shown the various purchases of the company, together with the leases, also the parts leased or sold to others, any of the four conditions being indicated by a suitable tint so that a glance could show the relation of the company to any piece of land in question. All the essential information imparted by the various deeds was put on the map, rendering it unnecessary to consult the latter, except in special incidents. The description and deed number being put on the map, the deed could be found with the least difficulty if necessary. All county, township and borough lines were shown, but only the permanent surface features, such as streams, railroad, public roads, boundaries of towns and villages, mine openings, out-croppings, etc. The scale used was quite small, enabling the map to be constructed on a conveniently-sized sheet, easily handled and readily consulted. This map formed the basis from which all the others were made.

The next map made was a general map of the inside workings. It was constructed on a slightly larger scale than the property map, and showed all the prominent surface features of the former, together with additions which were necessary in connection with the underground workings. No attention was paid to details in the mapping of the mines, as it was not necessary and the scale hardly permitted it. Only the principle gangways and tunnels were shown. The map was principally designed to give a general idea of the workings in a convenient shape.

A somewhat radical change was introduced in the construction of the regular working maps of the mines. Formerly the mine workings were shown on from 3 to 4 large maps, some of them over 35 ft. long and very difficult to make, each map containing four or five separate collieries. Now each colliery was on a map by itself. The constant rolling and unrolling to which the old maps were subject was extremely hard on both paper and ink, making it necessary to renew both frequently. Their own bulk and weight were the principal agencies in destroying them. There seems to be no occasion for using maps of this large size. When it is desired to use the working map there is only one particular locality desired, while the relation one mine bears to others can be seen on the general underground map. As a rule each mine is separate and distinct, possibly not connected with others at more than two or three places, with the exception of the water-level workings, for reasons of safety. Where two mines closely adjoin a small part of the other workings could be put on the map, if desirable, to show their proximity.

This method gives the minimum amount of papers to handle, and consequently the minimum amount of wear. This method is in contradiction to the general idea of a reduction in the number of maps, but in this case an increase in the number is desirable, because of the economy in time and labor. On each of these maps is placed all the surface features contingent to that colliery. The information given by the map is as complete and thorough as possible. Elevations at each station, together with the thickness of the vein and coal, dips, walls and faults are all carefully located and noted. At any time, without additional surveys, an estimate could be made of the amount of coal in a rib or a section constructed at any place desired. A new map is the surface map of each colliery, constructed on a scale sufficiently large for accurate scaling and showing all the surface arrangements in connection with that plant—the breaker, boiler and engine houses and all other buildings; the railroad tracks used in loading, together with all the mine tracks about the plant; rock and culm banks, pipe lines, troughs, etc. If the surface is any way irregular it is contoured and contour lines faintly marked on the map. These maps are as carefully brought up to date as the mine maps, and a survey of the same made with the same frequency as that of the mine, a careful inspection being made to note all changes or additions.

A careful and accurate map and profile was made of all the standard gauge railroad operated by the company, on a scale sufficiently large to accurately locate all frogs and switches. As it would have been impossible to have it on one continuous piece of paper, by using this scale, it was made in sections, the plans and profile of each section being shown together. All sidings and turnouts, together with their switches and frogs, were located; the telegraph stations, road crossings, signal lamps, semaphores, telegraph poles, etc., also located. All bridges and culverts were shown, in fact any information which would have any connection whatsoever with the railroad. As all the bridges and culverts are numbered on the ground the same numbers are placed on the maps, and all the information in connection with them tersely stated. A cross reference under each bridge shows where the plans can be found in the mechanical department. The point of curvature and point of tangent of curve are marked, and the degrees of all the curves expressed. All frog numbers and various sizes of rail are noted. The profile shows the ground before the railroad was constructed and the track at present, all cuts and fills being noted. The advisability or feasibility of any changes could at once be determined from these maps.

The maps of the several boroughs on the company's property were constructed on a scale of 50 ft. to the inch, large enough for accurate scaling. All buildings were located, all water lines, water plugs, sewers, railroad tracks, lights, etc. All the information it is possible to glean in relation to these towns is placed on the maps. A regular survey is made of these towns at stated intervals, where all new buildings and other improvements are located and placed on the maps.

The only other class of maps is that showing sections across the coal measures. These are made wherever the conditions warrant and require no further discussion.

THE SADTLER PROCESS FOR TREATING ZINC-BEARING ORES.

Much interest has been shown in the process with which Mr. Benjamin Sadtler has been experimenting in Denver, Colo., for the treatment of complex ores carrying zinc in considerable quantities. For that reason we give below an abstract of the specifications of the latest patent granted to Mr. Sadtler, covering his process. This is United States patent No. 656,268, dated August 21st, 1900, and the important part of the specifications is as follows:

"The object of my invention is to provide a means for the economical recovery of gold, silver and other valuable ingredients from ores which, by reason of the presence of iron or other oxides and zinc in substantial quantities, it has been impracticable to treat in any of the customary methods of reducing ores. . . . Iron oxide, if present to the amount of 5 per cent. or more, excludes their reduction by the means used in zinc distillation, since the iron oxide when exposed to the heat required for such distillation slags and corrodes the fire-clay of which the retorts are composed, destroying them and creating such chemical combination as interfere with the further separation of the ores, thus stopping the process of releasing and recovering the several valuable metals contained therein. If, on the other hand, an effort be made to treat such ores in blast-furnaces such as are commonly used for smelting ore carrying gold and silver, the zinc therein is vaporized and, encountering the air-blast, is precipitated as a crust upon the walls of the furnace, speedily choking it, obstructing and finally stopping the operation of the furnace. . . . I have discovered that such ores can be economically treated by first distilling out the zinc under conditions which exclude the chemical combinations above referred to, thereby freeing such ores from zinc and obtaining the residue in such condition as admits of ready separation in a smelting-furnace; and thereafter passing such residue to a smelting-furnace and further reducing it and separating its ingredients. I effect this distillation in retorts composed of materials which resist at once the corrosive action of the ores and the abrading action of the tools, while having sufficient strength or tenacity throughout their body to withstand the strain to which such use exposes them and of such composition as to readily transmit heat through their walls. After eliminating and recovering the zinc by such distillation, I pass the residue to a smelting-furnace and further reduce them in the manner commonly practiced when smelting precious-metal ores wherein iron oxide serves as a flux.

"It will be observed that in order to effect the desired elimination of the zinc by distillation, and at the same time avoid such chemical reaction at this stage of the operation as would interfere either with the proper recovery of the zinc, or with the delivery of the other ingredients to the subsequent treatment in the proper condition to facilitate their ready and economical separation, it is important that the retort in which the distillation occurs be of such a nature as to prevent the oxides or other corrosive agents in the ores from chemically combining with the acid constituents of the retort. Hence care must be observed that during the period of distillation the ores in the retort be excluded from access to the fire-clay constituents of the retort. If, for instance, these ores were during distillation brought in contact with the fire-clay, which gives tenacity and fire-resisting qualities to the retort (either by reason of such fire-clay forming the inner surface of the retort or by reason of fractures, cracks, or scratches through such lining as may be interposed, whether resulting from abrasions or from contraction and expansion due to changes of temperature), so as to admit chemical action of the oxides in the ore upon the fire-clay of the retort, the resulting combination would interfere both with the recovery of the zinc in available condition and with the qualifications of the precious metal-bearing residue for economic separation in the subsequent treatment. If such chemical action occurs during the distillation, the silicate thus formed arrests the elimination of the zinc both by taking zinc into its combination chemically and by softening or gumming the charge, so as to mechanically hold and prevent the escape of the zinc-vapor, preventing the recovery thereof as well as the release of the remaining metals necessary for the economic treatment of the residue and materially reducing the yield of zinc. This silica at the same time combining with the iron in the residue deprives it of its efficiency as a flux in facilitating the separation of the precious metals in the smelting operation, its properties as a flux being destroyed by combining with silica. These reactions would also by opening vents in the retort admit access of air, instantly stop the distillation, at the same time rendering the entire operation ineffectual, because destroying the retort and spilling its contents. Where the ores contain sulphur, it should prior to distillation be removed by roasting in the ordinary way. This distillation, for reasons already indicated, cannot be carried on in retorts of the character commonly used in zinc distillation, since the chemical action which would take place in such retorts would be fatal to the further carrying out of my process.

"The best means known to me for effecting this step in the process consists of a retort invented by me and . . . produced by forming its body of fire-clay or equivalent material, then applying to its inner surface (and preferably also to the more exposed portions of its outer surface, such as the top), a sintering material, such as silicate of soda, adapted to chemically combine with the fire-clay and also with the basic material under suitable firing, then applying a lining or coating of basic material—such as burnt dolomite, calcined magnesite, or an analogous substance, preferably treating the upper outside surface in the same way—then subjecting the entire body immediately before using to firing in a kiln or in the furnace itself at a temperature ranging about 1,500° F. for 2 or 3 days. While this retort is better adapted to the purpose of this process than any other known to me, I do not confine myself thereto, the essential condition of this stage of the operation being that

the distillation be conducted under such conditions as exclude the corrosive action and mischievous chemical combinations which would result if the oxides or corrosive agents have access to the fire-clay or other ingredients of the retort for which they have chemical affinity and in combination with which their action would be destructive."

We have received from Mr. Sadtler the following statements in relation to the experimental working of his process:

"There is a large amount of zinc ores carrying the precious metals which have been excluded from treatment in the ordinary precious metal smelters on account of its choking them, as well as rendering the slags less fusible and causing them to retain a larger proportion of precious metal values. Such ores would also not work in ordinary furnaces for zinc distillation, because they, as a rule, contain so much iron and lead as to make them corrode and destroy the retorts used. This is mainly due to the fact that the characteristic zinc product of the precious metal mines is of the variety known as marmatite, containing so much iron as a component part that it cannot be separated by any of the usual magnetic processes.

"We have succeeded, after considerable experimenting, in preparing retorts with a thin basic lining which resists corrosive action, enabling us, after roasting the ore, to distill off the zinc and save it and to leave the gold, silver, copper and iron ores in the residue, also about 80 per cent. of the lead, the lead being sufficiently volatile so that we cannot save all of it. This residue, being oxidized and containing some carbon and about 5 per cent. only of the zinc left in it, is desirable to precious metal smelters and readily smelted by them at a low expense.

"In order thoroughly to test the resistance of our retorts to corrosion, we made two separate runs of respectively 89 and 42 consecutive days, after having established what we wished by preliminary experiment. The first of these runs was made to establish for our own satisfaction the commercial feasibility of the process; the second was made to test ores for the satisfaction of parties desiring to put up smelting plants under our patents in the United States. Both of these tests were entirely satisfactory. You will find some details of our first test possibly interesting, and I give them herewith:

"We used a small furnace, containing 30 full-size retorts, which we purchased in Missouri. These retorts were lined by us with various basic ingredients, and after being carefully fired up in the furnace, were charged with ore. We lost, during the entire run of 89 charges, a total of 10 retorts, which were lost entirely by breakage, none of them having been corroded. This breakage was chiefly due to the fact that our workmen were not skilled in cleaning the retorts. This gave us a daily loss of one in 267, or a small fraction of 1 per cent. an oven against the daily loss in Missouri, running on ores not containing an appreciable quantity of iron, of 3 per cent., or one in 33 1/3. It is my belief that, with properly skilled workmen, we could materially lessen this small loss. The ore which we treated in these retorts was very materially different from the Missouri ore, in which it was their rule not to place in the retort a charge containing more than 2 per cent. iron or 3 per cent. of lead, as exceeding these figures makes their loss by corrosion too rapid. The ore which we treated ran variously, in the raw ore, from 16 to 30.5 per cent. iron, from 1.5 to 12.89 per cent. lead, from 2 to 9 per cent. silica and from 16.5 to 37.5 per cent. zinc. The silver ran from 5 to 17 oz.; the gold ran from $1 to $11. The zinc we produced was carefully assayed at the Grant Smelter and by two prominent assaying firms in Denver. It showed no gold or silver, these metals appearing to remain entirely in the residue. It showed variously from 0.52 to 1.12 per cent. lead and from 0.06 to 0.12 per cent. iron, both of these impurities being well within the limit allowed by first-class spelter of 1.5 per cent. lead and 0.2 per cent. iron. The residue was perfectly oxidized, containing some little carbon and all the gold, silver, copper and iron present in the ore and practically all of the lead. It contained from 4.2 to 8.5 per cent. of zinc on the smelter returns. As we were obliged to use rather dirty slack in this experiment, we ran the silica in the residue somewhat higher than would be the case in regular practice, where we would, of course, use a washed slack or a selected pure slack for admixture with the charge.

"Our second test was made on ores selected by parties with whom we were negotiating for the right to use territory in the United States. It consisted of several lots of ore and concentrates from Colorado and Montana points. These ores were roasted in the automatic roaster of the Pearce turrtes type at the Boston & Colorado Smelter. They were weighed and sampled both before and after roasting and the residue was also weighed and sampled after the extraction of the zinc. In this experiment, the weighed residue showed that all of the gold, silver and iron remained in the residue, which was perfectly oxidized, contained some residual carbon and only 5.4 per cent. zinc. The zinc recovery ran from 70 to 84 per cent., and was quite irregular, as we were not able to regulate the heat in our small furnace as well as could be done in a larger one. We did recover a high enough percentage, however, to justify the assumption that a large and regular modern zinc furnace, using these retorts, would save the ordinary 85 per cent., which is considered fair in actual practice.

"In these experiments, the ore was not roasted below 1 per cent. in sulphur, as is usual in ordinary zinc practice, as we did not have furnaces specially fitted for this purpose. To our surprise, we discovered that the zinc in our residues ran lower than was the case in ordinary Missouri practice. On investigation we found this to be due to the fact that the iron in the charge had, to a considerable extent, reduced in the shape of small shot of metallic iron which absorbed the sulphur from any incompletely roasted zinc blende to such an extent as to set the zinc free more fully than is the case in ordinary practice. These iron shot also contained quite a notable amount of the precious metals, especially gold, showing in fact a concentration of these values, rendering it necessary for us to have them estimated in the course of sampling the residues.

"A carload of spelter produced from the first run was shipped to the Globe Smelting and Refining Company and was reported by that company to be of good quality and just as good for their refining purposes as the spelter which they had been purchasing in Missouri.

"In regard to the preparation of the ore for the retorting, it requires crushing and roasting. It is not desirable to have too high a percentage of either silica or lead, not that they appeared to have injured the operation of the process to the extent that we did use them, but because it is a poor economy to use so expensive a process as distillation on substances such as lead, which derives no benefit therefrom, or such as silica, which is simply a dead weight. It will be found in most ores that it is desirable to concentrate prior to use by this process, cleaning out such proportions of the lead and silica as can be done without undue loss of value. As the ore has in any event to be crushed before roasting, the concentration does not add largely to the cost of the process.

"The cost of the process is simply that of ordinary zinc roasting and distillation plus the cost of from 8 to 12c. each for lining retorts, which is more than offset by the greater life of the retorts as shown above and by the fact that we do not need to roast so closely, and can consequently roast more cheaply. The profits come from the fact that these composite ores can be purchased more cheaply than pure zinc ores of Missouri and elsewhere, and the gold, silver and other valuable metals in the residue make it a salable and profitable product."

MINERAL PRODUCTION OF ITALY.

The mineral industry of Italy was, upon the whole, prosperous during 1899, and most of the more important products showed an increased output. The "Rassegna Minerarvia" has just published the official reports for 1899, from which we take the following table, showing the output of ores and minerals for two years past, in metric tons:

	1899.	1900.	Changes.
Gold ore	9,549	11,859	I. 2,310
Silver ore	435	540	I. 105
Iron ore	190,110	236,549	I. 46,439
Manganiferous iron ore	11,150	29,874	I. 18,724
Manganese	3,002	4,356	I. 1,352
Copper ore	95,128	94,764	D. 364
Zinc ore	132,099	150,629	I. 18,530
Lead ore	33,930	31,046	D. 2,884
Antimony ore	1,931	3,791	I. 1,861
Quicksilver ore	19,201	29,322	I. 10,121
Nickel ore	.....	3	I. 3
Mixed ores (Zn, Pb, Cu)	250	3,248	I. 2,998
Pyrites, iron and copper	67,191	76,538	I. 9,347
Coal and lignite	341,327	388,534	I. 47,207
Sulphur ore	3,362,841	3,753,206	I. 390,365
Rock salt	18,199	17,821	D. 378
Salt from brine	11,546	11,021	D. 525
Crude petroleum	2,015	2,242	I. 227
Asphalt rock	92,941	81,107	D. 11,834
Bituminous rock	809	880	I. 71
Alunite	7,000	5,800	D. 1,200
Boric acid	2,650	2,674	I. 24
Graphite	6,435	9,990	I. 3,555

In addition to the minerals shown in the table, there was an output of 753,185 cubic meters of natural gas, and of 27,114 tons of mineral waters.

The total value of the ores and raw minerals mined is given for 1899 at 91,392,468 lire ($17,638,804). This is an increase of 19,588,397 lire, or 27.3 per cent., over the previous.

The total number of mines or mining establishments at work last year was 1,052. The larger number of these were the sulphur mines, of which 703 are reported. The next class in number was the zinc and lead mines, of which there were 136.

The products of the mills and metallurgical works are given in the following table, in metric tons:

Metals:	1899	1900.	Changes.
Gold ....Kg.	188	113	D. 75
Silver ....Kg.	43,437	33,645	D. 9,792
Copper ....Tons	11,765	13,268	I. 1,503
Tin ....Tons	2	5	I. 3
Lead ....Tons	24,543	20,543	D. 4,000
Zinc ....Tons	250	251	I. 1
Antimony ....Tons	380	581	I. 201
Quicksilver ....Kg.	173,000	205,000	I. 32,000
Pig iron ....Tons	12,387	19,218	I. 6,831
Wrought iron ....Tons	167,499	197,730	I. 30,231
Steel ....Tons	87,467	108,501	I. 21,034
Tin-plates ....Tons	7,200	8,000	I. 800

The output of other refined products is stated below, in metric tons:

	1899.	1900.	Changes.
Briquettes	609,150	585,350	D. 23,800
Sulphur	601,845	673,910	I. 72,065
Sea salt	451,426	365,826	D. 85,600
Asphalt, mastic, etc.	17,789	40,259	I. 22,470
Petroleum	5,040	5,384	I. 344

The following table shows the production of gas and by-products from the distillation of coal:

	1898.	1900.	Changes.
Illuminating gas....Cub. m.	192,762,814	195,861,872	I. 3,099,058
Coke ....Tons	469,223	485,951	I. 16,723
Coal tar ....Tons	31,315	33,190	I. 1,875
Ammonia and am. sulphate....Tons	4,274	48,232	I. 43,958

The gas made is produced almost entirely from foreign coal, chiefly imported from Great Britain.

WORKING PERSIAN MINES.—The Caucasus Industrial and Metallurgical Company is a concern started by French capitalists, for the purpose of exploiting the Tersch and Kuban districts, more especially the copper works at Achtala, in the Government of Tiflis; the capital of the company is 5,000,000 frs. It would appear from recent investigations, says the London "Engineer," that the mineral riches in that part of Persia which adjoins Russia, are very considerable, and a syndicate, formed by two energetic Russian engineers, has for its man object the investigation and acquirement of ore deposits, more especially in the Persian and Turkish districts, close to the Transcaucasian frontier. Concessions have already been secured by the company for the working of the ore deposits of the Mountain Karadagh, at the River Araxes, on Persian territory, but quite close to the Russian frontier. It is intended to export the ore to Russian territory, and to smelt it down at works to be erected there.

THE QUARTZ LODES OF THE ATLIN DISTRICT, B. C.

Written for the Engineering and Mining Journal by R. H. Stretch.

In the following notes on the Atlin District I have endeavored to bring together the present knowledge of the vein structure of a region 60 miles from east to west and 40 miles from north to south, with an area of 2,400 square miles. The notices are fragmentary, but it must be remembered that only two years ago this region was entirely unexplored and was represented on our maps by a few items of information derived from Indians who had acted as guides to parties passing up and down the Lewes River. Even to-day our actual surveys give only a skeleton. The accompanying map is based on explorations made by the White Pass & Yukon Route between Skagway and Caribou, by way of Lake Too-chi and Windy Arm, as well as by way of Bennett Lake; on a recent survey of the north boundary of British Columbia on the 60th parallel of north latitude; on a line run from Log Cabin to Atlin by way of Otter Lake, and on maps of the Atlin placers and the south end of Atlin Lake, prepared by Messrs Brownlee & Lowry, of Atlin. No surveys have yet been made of Taku Arm, or of the land areas between this body of water and the railroad to the west, which is filled in on information and features of mountain topography easily recognizable from a distance. The map must therefore be taken as merely a close approximation to the truth, while at the same time it is believed to be fairly accurate, having been redrawn several times since November, 1898, and having withstood the criticism of many prospectors.

It is, however, too imperfect for the precise delineation of minute geological features; but in general terms all the country to the southwest of a line drawn through the middle of Bennett Lake, in a southeasterly direction to the head of Otter Lake, or nearly parallel to the Lynn Canal watershed, is granitic, with a broad band of schists, quartzites and diabases on the northeast flanks of this backbone, followed in ascending series by limestones in the northeast corner of the map, broken only by a minor granitic axis east of Atlin and near the head of Surprise Lake, which is more or less parallel to the major coastal uplift. The coast granites have fissured the sedimentary rocks and show many intensive tongues, so that they are of comparatively recent age, while both granites and sedimentaries are seen to be cut in the Skagway Valley by dikes of quartz porphyry. We may, therefore, expect similar phenomena in other localities not yet explored. Many large areas of the sedimentary series have suffered but little tilting, as evidenced by the flat tops of the mountains south of Otter Lake, which correspond largely to the bedding planes of the rocks. No fossils have yet been found, so far as I am aware. At many points throughout the region ancient beach terraces cling to the mountain sides up to an altitude of 500 feet or more, this feature being especially noticeable round the north end of Lake Bennett, in the Wheaton and Watson Valleys and round Tagish Lake.

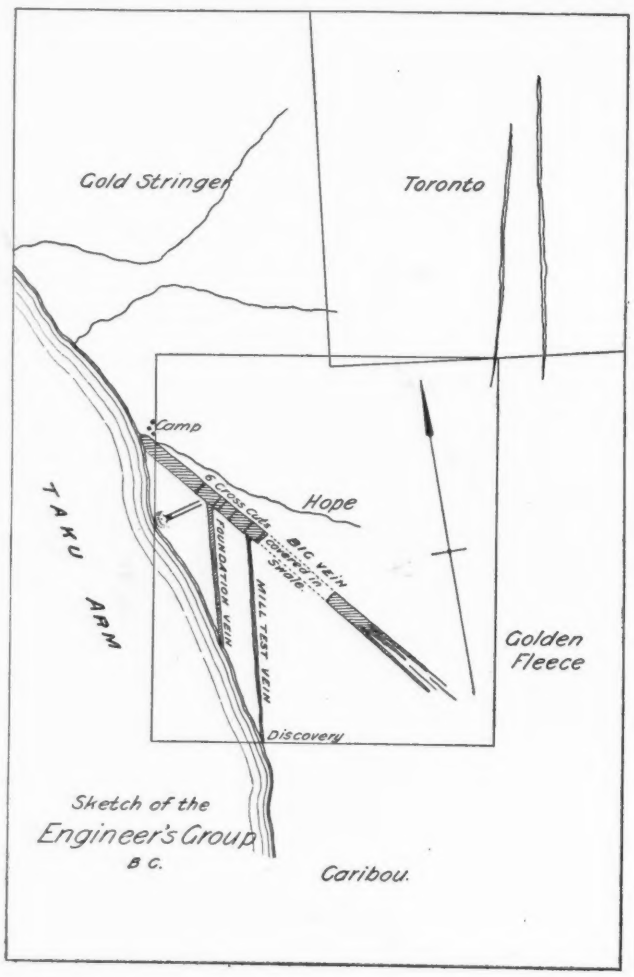
The entire country is covered with forest and underbrush, and land travel in summer is tedious in the extreme; while the present population is concentrated at a few settlements on the main lines of water communication, the areas between the lakes being tenanted only by a few prospectors in summer and trappers in winter. The steamboat service on the lakes in summer is good, and all points of present interest can be reached from the railroad by water, without change, except Atlin Lake, which is connected with Taku Arm by a short railroad of two miles, as the river outlet of the lake is not navigable at present, though capable of being made so in the future.

In the following notes the localities on the map are referred to by numbers and check squares, each of which covers 10 miles.

No. 9 (E 5). Known as the Engineer Group, owned chiefly by engineers in the employ of the White Pass & Yukon Route. The group embraces 13 locations of 1,500 ft. square, and lies on the eastern shore of Taku Arm, about 10 miles south of what is known as the Golden Gate, at the entrance of the East Arm, and about 60 miles by deep water from Caribou on the railroad, which is 67 miles from Skagway and ocean steamers, so that it enjoys for this region exceptional facilities. The accompanying sketch will give a better idea of the vein location. A wide body of compact chalcedonic quartz, with crystallized vugs, poor in sulphuretted minerals, runs about south, 40° east, from the water's edge for a distance of about 1,100 ft., with only one break, as shown, the southerly exposures having an altitude of about 500 ft. above the lake. Six cross-cuts are said to show an average width of 70 ft., and a 200-lb. sample from these cuts is said to have given an average value of $30 per ton. The ore is very solid, with blue stains, which latter show numerous minute metallic specks of some (probably) telluride combination, which forms conspicuous beads on wasting at a low heat and cooling suddenly. Into this main body two veins enter from the south, with a course of about north, 10° east. Both of these are strong and well defined. The Mill Test Vein was the first discovery and yields beautiful specimens of crystallized gold, in thin, comb-like flakes, from the later fracture joints, made after the deposition of the quartz. The Foundation Vein is so called from its similarity to the foundation of a house when looked at from below, and is similar to the Mill Test. Near the lake level a tunnel was started to tap these veins at about the junction of the Big and Foundation lodes. This tunnel, which was expected to have a length of about 145 ft. and to be some 100 ft. below the surface at that distance, is now approaching the point of intersection and has disclosed a body of black clay schists, banded with quartz seams parallel to the strike of the Foundation Vein, which, as the vein is approached, yield fine gold specimens, while both quartz and schist are heavily charged with auriferous arseno-pyrite, almost amorphous in structure. So far as at present known, these banded schists are not found on the eastern side of the big vein, in direct contact, but reappear on the Toronto location as two well-defined out-crops over 1,000 ft. long, in every respect similar to the Mill Test. Many other outcrops are known upon the other locations, and the outlook is certainly very favorable for a big mine.

No. 1 (D 7) on Monroe Mountain, about 6 miles northeasterly from Atlin, a strong, well-defined vein, has been opened by tunnels on a very steep hillside, the product of which is now being reduced at the 5-stamp mill about ½ mile south of town. The ore is a compact, massive white quartz, with a tendency to a waxy luster, very slightly mineralized, and stained in the joints with green chlorite and nickel (?) and yellowish-brown ocher, the latter being apparently derived from the decay of hornblende or some other of the bisilicates, and not from the oxidation of pyritous matter. On prospecting in the horn spoon, the rock does not appear to have great values, so that the probability is that the gold is moderately coarse and not uniformly distributed. That the working result is satisfactory is apparently proved by the fact that the mill is only leased; that some $5 per ton is paid for hauling from the mine to the mill in sacks; and that at the time of my visit they were engaged in putting in a new rock-breaker at the mill. Judging from the color of the last bar produced, worth about $1,300 to $1,500, the gold will go about $15 to $16 per ounce. The rocks associated with the vein are obscure, but there is evidence of a certain similarity to those at

No. 2 (8 E), known as the Yellow Jacket Claim, undoubtedly so called from the bright brownish-yellow of the conspicuous outcrop. The shafthouse is located on the south side of Pine Creek, about 1 mile above the town of Discovery, or 8 miles from Atlin, and is only about 10 ft. above the level of the creek, on a narrow strip of bedrock laid



bare by the placer operations. As both sides of the creek are still overlaid by gravel banks, the exposure in a northwest and southeast line is naturally very short; but along the northern bank of the creek the peculiar yellow rotten rock, which forms the larger part of the dump at the shaft, is exposed up stream for a long distance and forms very largely the bedrock of the placer diggings. It is claimed that when the waters of Pine Creek were diverted by wing dams, in order to work its bed, the wall or boundary of this yellow rock was very plainly visible, running up stream in a northeast and southwest direction, accompanied by a vein of arseno-antimonial ore. There is some doubt in my mind as to the correctness of this information, as there are places now visible where unaltered bunches of shaly black rock intervene between the creek and the altered rock, which is probably of intrusive origin. In parts it is largely serpentinized and is everywhere full of quartz veinlets, and may be low-grade ore, as it has undoubtedly produced some very fine gold specimens, and its close association with the bed of Pine Creek suggests it as one of the sources of the placer gold. The whole property is, however, unfortunately tied up in litigation and will probably be difficult to explore, if it follows, as claimed, the bed of the creek, on account of the large amount of water to contend with.

No. 3 (E 8), a short distance to the southeast of the Yellow Jacket, we find undeveloped quartz outcrops, in many respects resembling the quartz of the Big Vein at the Engineer Group, well located for work on a moderately steep, massive mountain spur, and easily accessible, as here, as throughout the Atlin Region proper, the hills, as a rule, have moderate slopes and altitudes. These ores show but little, if any, gold to the eye, but yield well in the horn spoon. My tests gave from $20 to $30 per ton in free gold, mostly fine; while the

fire assay gave me from the same block of white bluish stained quartz upward of 19 oz. of bullion per ton, which would average, judging by the color of the unparted duplicate prills, about $10 per oz.

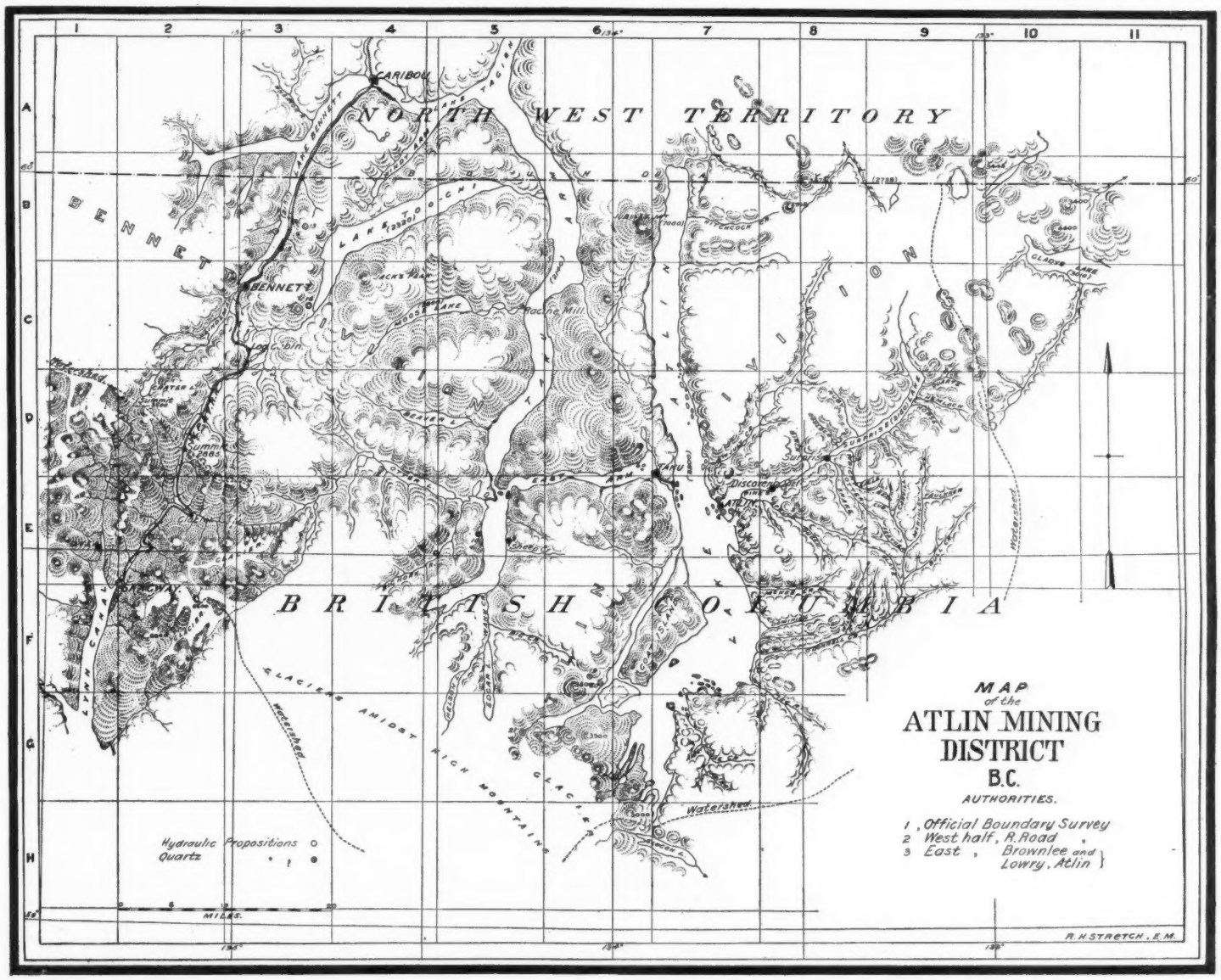
Nos. 4, 5, 6 and 7 (E 7) are all openings in the neighborhood of Atlin, near or on what is known as the Anaconda ground. This name is applied to a group of claims about 1 mile south of town, on the lake shore, which cover an extensive outcrop of altered rock, partially serpentinized, yellowish-brown in color, with numerous quartz veinlets, as at the Yellow Jacket location. The rock is probably of the same composition and reminds me very strongly of the dike which accompanies the Louise and other locations near Coulterville in Mariposa County, California. Many small pits have been sunk by parties who sampled the outcrop and are said to have determined an average value of $8 per ton for the mass. They built the small 5-stamp mill before referred to for the purpose of making a commercial test, but the whole property is tied up in litigation and the mill leased to other parties. The explorations appear to have been made without any systematic design, but in two shallow shafts I found bodies of clean crystalline quartz impregnated with galena, and in others at the north end (Nos. 4 and 5) the characteristic chalcedonic bluish tinted quartz of the Engineer Group, giving equally good assays. In some of the cuts the rough yellow outcrop fades gradually into impure serpentines, with the characteristic green stains, and an examination of the bluffs along the shore suggests a body of altered schists, highly charged with disseminated iron pyrites. The surface is so thickly clothed with small trees and undergrowth that systematic work is required to correlate the isolated facts developed and to thoroughly demonstrate the value and amount of the workable ore. The facilities are, however, excellent. The property is known as the Lord Hamilton purchase and lies just north of the mouth of Pine Creek, and the vicinity of a considerable area of white alkaline carbonates or sulphates, suggests considerable chemical activity in the neighborhood.

No. 10 (E 5). On the west shore of Taku Arm, a little north of the Engineer Group, are a large number of claims, including the White Moose. But little work has been done, but the outcrops are strong and well mineralized with copper pyrite, gray copper, galena, and copper carbonates, associated with gold and silver, in a quartz gangue. Some of the ore samples suggest the presence of diorites, saturated with copper pyrite, and are somewhat similar to the ores found at No. 15 (B 3) and at No. 12 (D 4).

No. 11 (E 4). At this point there are numerous parallel outcrops of gold-bearing quartz, dipping to the northwest at rather flat angles, and apparently contact lenses between diabases and overlying quartzites. A small amount of unintelligent development has been done, but the claims are now idle. The tongue of land between the Bighorn Creek and Taku Arm has many other locations and seems to be very generally mineralized.

No. 12 (D 4). At the head of Otter Lake a small opening has been made in what seems to be a body of mica schists impregnated with galena and more or less blende, giving assays of about gold 0.6 and silver 45 oz., as an average of three samples. The locality is, however, not attractive at a time when many things are offering in more accessible situations.

Nos. 13, 14, 15 (B 3). These localities cover a series of locations on a highly serpentinized belt which crosses Lake Bennett in a northwesterly course, about 6 miles from its head, and is near the northern edge of the granite uplift. The railroad cuttings have disclosed extensive metamorphism of the schists, giving rise to veins of coarsely crystallized calcite, asbestos and other associates of serpentine. In this belt from the water level up to an altitude of 2,500 ft. above the



crystalline quartz impregnated with galena, and in others at the north end (Nos. 4 and 5) the characteristic chalcedonic bluish tinted quartz of the Engineer Group, giving equally good assays. In some of the cuts the rough yellow outcrop fades gradually into impure serpentines, with the characteristic green stains, and an examination of the bluffs along the shore suggests a body of altered schists, highly charged with disseminated iron pyrites. The surface is so thickly clothed with small trees and undergrowth that systematic work is required to correlate the isolated facts developed and to thoroughly demonstrate the value and amount of the workable ore. The facilities are, however, excellent. The property is known as the Lord Hamilton purchase and lies just north of the mouth of Pine Creek, and the vicinity of a considerable area of white alkaline carbonates or sulphates, suggests considerable chemical activity in the neighborhood.

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No. 11 (E 4). At this point there are numerous parallel outcrops of gold-bearing quartz, dipping to the northwest at rather flat angles, same numerous outcrops of galena associated with quartz and iron pyrite, and others of arseno-pyrite and antimony, have been found, and some little work has been done, but no extensive lodes have yet been uncovered. The ores assay well, from $6 to $50, chiefly in gold, and the oxidized arsenical outcrops show well in free gold, and on the Lake Too-chi slopes these ores seem to have formed fairly good placers, showing that in all probability large numbers of similar lenses have been worn down by the glaciers at the heads of these canyons. It is too early, however, to speak of their commercial value. The ores at 14 and 15, near the lake, show more galena, and those higher up the mountain at 13 more of the arsenical compounds.

No. 16 (C 3). Much quartz is found round the head of Too-chi Lake and will probably be found related to the group just sketched. The foregoing may be considered a fair sketch of the known gold and silver bearing localities. Besides these we have at

No. 17 (E 2) considerable molybdenite and on the east fork of the Skagway, in square E 2, large boulders of pure galena are found in the wash. Report says that they have been recently traced to the lode in place, near the foot of the glacier, which feed this stream, but the statements of the gold and silver values are very conflicting. My own samples gave very small results.

Nos. 18, 19, 20 (F 6). The ores at this point are essentially those of copper. On the main land to the south of Goat Island, and about ½ mile inland, extensive deposits of copper pyrite are reported (No. 19).

The chalcopyrite is said to be a large mass, with a surface area of 2,000 by 400 ft., and to lie well down in the foothills, so that it is easily accessible. On the edge of the mass a tunnel has been run in 30 ft., and some 60 lbs. of this ore, examined by myself, was massive copper pyrite in part, and partly a mixture of copper and iron pyrite, but without gangue, and certainly more promising than anything so far developed in the White Horse Region. To speculate on the percentage of copper would be premature and at this date I have no data of the gold and silver contents. Just as I was leaving Atlin, I heard that another body had been found (No. 20) between the one just described and the lake shore.

In this region also (No. 18) we find considerable masses of native copper. These occur in an easily traceable dike (?) associated with quartz (banded), which crosses numerous tongues of land along the shores of the strait separating Goat Island from the main land. The dike is very coarsely granular, of as yet undetermined composition, and is impregnated, as well as the quartz, with native copper from fine flour up to coarse particles. I have a beautiful sample weighing 18 oz., with a little quartz attached, and one mass weighing some 175 lbs. was sent to the Paris Exposition. This was a large, irregular slab about as thick as a man's hand and was found imbedded vertically in the lode with a portion projecting above the ground.

No. 21 (G 5). At the extreme south end of Lake Atlin, outcrops of nickel-silicate have been found extending on both sides of a small stream for a distance of 2 or 3 miles. The stream has apparently cut through a flat body of serpentines, dipping slightly to the northeast, producing the appearance of two parallel lodes. The only test so far made shows a grade of about 6 per cent. of nickel, though it is probable that the ore will be found to carry more or less gold and silver, as many of the silicious ores from other points round the lake show traces of nickel staining. These ores are easily accessible, being only six miles from deep water, and are accompanied at a higher horizon of about 600 ft. by a similar series of blackish ores carrying smaller quantities of other nickel compound very markedly different from the bright green silicates.

All the ores so far seen from localities near the shores of Atlin Lake show profound structural and chemical changes in the rock formations, and are apparently all found in a series of schists, quartzites and diabases, cut by dikes, the composition of which is yet uncertain on account of their extensive surface alteration. The tendency to pass into serpentines is everywhere present.

From localities further to the east, between Atlin and Teslin lakes, I have seen very fine samples of auro-argentiferous galena in white quartz, giving practically the same assays as No. 12.

Finally, from the country between Taku Arm and Goat Island I have seen a fine series of complex ores, carrying apparently gray copper, arseno-pyrite and galena in a quartz gangue, from numerous locations, but I have no further knowledge of their occurrence.

These isolated localities in all probability indicate but a very small proportion of the actual outcrops which will be discovered when settlements form convenient points for supplies, from which prospecting can be carried on without the present difficulties and risk and loss of time. The general character of the ores is probably fairly represented, and a fair general estimate of working costs can be arrived at by a careful study of the map. The object has been chiefly to draw attention to a new and wide field of enterprise.

THE POSSIBILITY OF AN IRON INDUSTRY IN NORWAY.

Written for the Engineering and Mining Journal by H. C. Carpenter.

Professor J. H. L. Vogt, of Christiania, Norway, who has for some time past been giving much attention to the subject of iron in Norway, has recently published the results of his investigations, in which he declares in favor of the possibility of founding a Norwegian iron industry. According to Prof. Vogt, Norway's export of iron ore via the Ofoten Railway is to begin in 1903, and will amount to 1,200,000 metric tons per annum; the prospects are, however, that this figure will increase to 1,500,000 or even 2,000,000 and higher. The important exports from Swedish mines, together with the extensive discoveries in Northern Norway, have been the causes of the agitation of the present question as to whether a portion of the domestic ores cannot be utilized within the borders of Norway.

The ore from Kirunavara, which is to be transported over the Ofoten Railway, consists principally of magnetite, partly of specular iron and apatite, with only 1½ to 2 per cent. of foreign substances. The ore is therefore exceptionally rich in iron, containing on an average 66 per cent., while the bulk carries phosphorus to the extent of 1 per cent. and over. The method of sorting the ores in different classes will also no doubt be pursued in Kirunavara, as has been done for a number of years in Gellivara. It may further be mentioned that Kirunavara ore is exceedingly compact and difficult to reduce, necessitating an increase in the use of coke in the furnaces.

Norwegian ores, especially those of the Nordland, are classified in two groups: The ores in Dunderlandsdal in Rauen, Näverhaugen, in Salten, Tomo, etc. 2. The deposits in gabbro in Lofoten and Westeraalen (as well as in Stjerno in the district of Tromso). The first-named are characterized by an important longitudinal drift and high power, but the bulk of the supply is poor in iron. The average contents of iron amount only to 40 per cent., and 0.2 per cent. phosphorus. Most of the ore is mixed with quartz, so that only the richest parts can be worked directly; the bulk must be prepared, or concentrated by mechanical means. Several experiments with Dunderland and Naverhaugen ores have demonstrated that the ore is easily crushed, but one ton of raw ore will yield only ½ ton of concentrate with a little over 60 per cent. of iron.

The output of the mines per ton of ore visible is therefore considerably decreased, to which must be added the cost of preparation and the difficulties connected with the smelting of the powdered ore. The working of the deposits, which are located 12 to 47 kilometers from the coast, necessitates, besides, the construction of railways and harbors. Ore from Selvaag, in Westeraalen, can, since it contains basic materials, be utilized as a mixture; it contains at the most 40 per cent. of iron and also a limited but nevertheless obstructive quantity of titanium.

In calculating the cost of production of pig iron at the furnaces in Ofoten, taking Kirunavara ore, Prof. Vogt states that one ton of this ore can be delivered free in Ofoten at a cost of 5½ kronen. Adding 2 kronen, the miners' profit, the ore can be sold at 7½ kronen ($2.10). The quality of iron may be accepted at 65 per cent., which is rather low than high; hence the ton of iron in the ore can be reckoned at 11½ kronen ($3.08). One ton of Gellivara ore, 63 to 64 per cent. iron, needs, according to experiments in the Rhur District, about 0.85 ton of coke, perhaps a little less. Kirunavara ore is somewhat richer in iron, but on the other hand is harder to reduce. Under rational blast furnace construction, however, where note is taken of the special quality of the ore, the consumption of coke should not exceed 0.9 ton per ton of pig iron. If English or German coke can be imported into the port where the iron is unloaded, so that coke can be brought as return freight, it should be possible to deliver a ton of coke, under ordinary conditions, in Ofoten for about 17 kronen ($4.56). Following this line of reckoning, 0.9 ton of coke should be reckoned at 14½ kronen, flux ½ krone, labor 4 kronen, general expenses 3½ kronen, bringing the cost of a ton of pig iron up to 35 kronen ($9.38 per metric ton), a figure which is low enough to make the production profitable.

The construction of blast furnaces in Ofoten with a yearly capacity of 40,000 to 50,000 tons, Prof. Vogt holds to be the most rational course to pursue. According to the kind of ore chosen, foundry or basic iron could be produced. Prof. Vogt things the basic open-hearth process more favorable for the conditions of Nordland. The pure dolomite of the Nordland would form excellent lining for the furnaces, and fluxing ores such as magnetite and specular iron are abundant.

During the past year Norway's importation of foundry pigs, steel and bar iron (raw and worked) amounted to 100,000 tons. The largest part of an output of Norwegian blast furnaces would therefore find a market at home, and the balance could be exported to Denmark, Northern Sweden and the north of Russia. Again, in a few years Norway will need for the inland market a number of large iron works, at which time it will also be possible to export as well steel and bar-iron to European countries.

The cost of construction of a modern blast furnace Prof. Vogt estimates at 2,500,000 to 3,000,000 kronen ($670,000 to $804,000). He wishes the enterprise, if undertaken, to be in the hands of home capitalists. If there should arise a dearth of labor, workingmen could be imported from Sweden. On the whole, the Norwegian professor is highly in favor of the beginning of an iron industry in his country.

INTERMEDIARY FINE CRUSHING.—The Union Iron Works of San Francisco have lately introduced a novelty in the shape of an intermediary fine crusher between the automatic feeder and the mortar. It is stated, though it is not mentioned where this improvement is in operation, that an output of 5 tons per stamp can be obtained. The crusher is a jaw rock breaker, crushing to 0.25 cube, the running of which would doubtless add to the vibration of the battery and the driving gear being belting behind the battery would increase the danger to the battery man.

INTERNATIONAL PETROLEUM CONGRESS.—A meeting of the International Petroleum Congress Committee was held on September 12th in Paris, for the purpose of discussing the question of compiling and publishing a "Technology of Petroleum." M. Neuburger stated that he had reconsidered his offer made before the Congress, and had come to the conclusion that it would be more satisfactory if this publication was made as an official publication of the Congress, the members of the committee promising that, in their private capacity, they would give every assistance to M. Neuburger in its compilation. Future meetings of the Executive of the Permanent International Committee will be held monthly.

IRON AND STEEL TRADE OF GREAT BRITAIN.—The values of the exports of iron and steel from Great Britain for the eight months ending August 31st are reported as follows:

	1899.	1900.	Changes.	Per ct.
Iron and steel.....	£17,366,452	£22,411,212	I. £5,044,760	29.1
Machinery	12,932,292	13,073,686	I. 141,394	1.1
New ships	5,970,483	4,843,453	D. 1,127,030	18.7
Total values	£36,269,227	£40,328,351	I. £4,059,124	11.2

The actual quantities of all forms of iron and steel this year were 2,538,213 long tons, against 2,346,661 tons in 1899; the increase being 191,552 tons, or 8.2 per cent.—much less than the gain in values.

Imports of iron and steel amounted to £183,675, against £239,462 in 1899. Pig iron to the value of £31,500 was imported from the United States this year, against £67,420 last year.

THE INTERNATIONAL SOCIETY OF BORING ENGINEERS.—The fourteenth International Congress of Boring Engineers was opened at Frankfort, Germany, on September 5th, by Oberbergrath Tecklenburg, President of the Society. Dr. P. Dvorkovitz was appointed as the English representative of the International Society. This Society now includes in its membership many experienced boring engineers. Among the papers read at this congress are:

"The Greatest Depths Attained in Mining and Boring, and the Results Occurring Therefrom," by Dr. E. Naumann.

"On the Cost of Carbons for Boring Purposes," by M. Jacques Baszanger.

"The Gothan Apparatus for Determining the Slope of Strata in Boring Cones," by Mr. Gothan.

"The Report of the Congress on Screw Threads and Proposal for Adopting a Standard Gauge," by Waclaw Wolski.

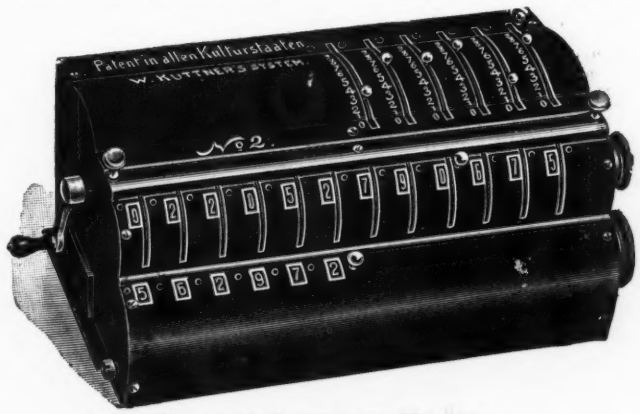
KUTTNER'S CALCULATING MACHINE.

The calculating machine shown in the accompanying figure consists of a fixed or setting part, A, and a movable part or slide, B. The fixed part A is rigidly connected to the base plate, and on it is set the amount to be added, subtracted, multiplied, or the number by which another number is divided.

In setting the amounts for any computation the crank on the left-hand side of the machine must be held in a vertical position and downward, and must be kept in this position during the entire setting. To accomplish this press the end of the small rod passing through the center of the crank handle into its recess in the plate, and hold it in that position throughout the setting.

To set any amount in the fixed part, move the small button A in the different slots to the figures comprising the number. For example, to set the number of 7165, set the button in the outer slot on the right-hand side exactly at 5; the button in the next slot at 6; the button in the third slot at 1, and the button in the fourh slot at 7. All the other buttons remain at 0, or must be set at 0 if such is not already the case. To set the amount 1234.56, set the outer button on the right-hand side at 6, the next button at 5, the third at 4, the fourth at 3, the fifth at 2, and the sixth at 1. In addition set the decimal point and indicator between the second and third row of slots from the right. This indicator is to be set in the line of recesses between the slots of the fixed part.

As is seen from the two examples, the position of the decimal point is not fixed, the outer right-hand slot serving to show the units in the first example, while in the second it shows hundredths. It is consequently necessary to set the decimal point for every computation. In case there are no decimals the indicator is set to the right of the first slot on the right-hand side. In case there are not enough slots to contain the number to be set, it must be separated and two or more separate computations made. Of course, it is more convenient to use a machine



KUTTNER'S CALCULATING MACHINE.

having a sufficient number of slots. Besides the machines of six places, machines of eight, ten and more places can be furnished.

The line of figures C contains the sum in addition, the difference in subtraction, the product in multiplication and the dividend in division. The line of figures d shows the number of addenda in addition, the number of subtrahends in subtraction, the multiplier in multiplication and the quotient in division.

Before beginning any computation the figures in the lines C and d are to be set at 0. To do this, remove the slide from the fixed part (which, by the way, can be accomplished only when the crank is in a vertical position) and move it either to the right or left a fraction of an inch, then press the lever h rapidly toward the knob m, which will produce 0 in the line C. The same operation with the lever h 2 will produce 0 in the line d.

No matter how complicated the numerical solution of mathematical formula may be, we have only to deal with addition, subtraction, multiplication and division, and all such formulas can consequently be solved by means of the calculating machine. These computations will be most readily made by following those methods in which results are carried forward on paper as little as possible. General rules to effect this purpose are not easily laid down, but the calculator will soon find the best method adapted to his particular case, and as his familiarity with the machine increases, his proficiency and confidence will increase in like proportion.

The machine is introduced by the Eugene Dietzgen Company, of Chicago and New York.

ABSTRACTS OF OFFICIAL REPORTS.

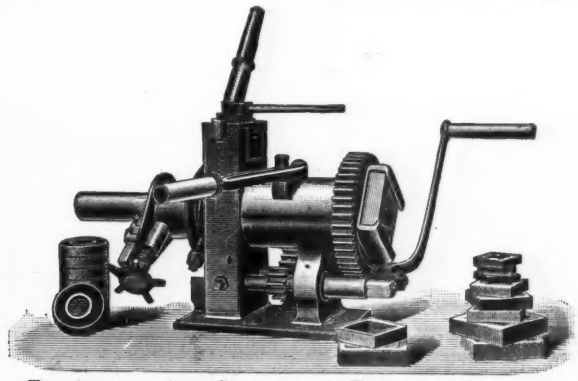
Great Boulder Perseverance Gold Mining Company, Western Australia.

The directors' report for 1899 says that during the year 22,734 tons of ore have been crushed or smelted for a yield of 36,712 oz. gold, and 12,034 tons of tailings have been treated for a yield of 8,571 oz., making in all a gross total of 45,283 oz. gold, the profit on which (after deducting the whole cost of development work for the year, and London expenses, and setting aside £1,950 as a reserve against the duties payable to the West Australian Government) amounts to £78,419. Adding the balance of £80 brought in from last account, there is a total to the credit of the profit and loss account of £78,499; this the directors propose should be applied in part payment of the cost of the new sulphide plant and the equipment of the mine with the additional machinery now being laid down. The attention of the management has again been largely devoted to opening up the mine in readiness for the starting of the sulphide plant. The completion of this plant has been greatly delayed by the manufacturers of the machinery failing to fulfil their engagements as to the time for delivery. The whole of the machinery has now either arrived or is due to arrive at Freemantle, W. A., and in the meantime the necessary foundations and buildings have been prepared. Mr. Nichols advises the board that the plant should be at work within six weeks of the arrival of the whole of the machinery.

The General Manager's report shows that a large amount of development work has been done on the property on which 5 strong lodes are proved to exist. The width of these lodes ranges from 2 ft. 6 in. to 100 ft. and assays are reported at from 1.4 oz. to 18 oz. per ton. It will be seen from Mr. Nichols' report that he expects the Australia Lode to come into this company's ground at lower depth (making a sixth proved lode), and that he anticipates its junction with the Lake View Lode which traverses the whole length of this company's lease. Since the date of his report important developments have been announced. The lode has been cut in the 300-ft. level from the No. 4 shaft assaying 18 oz. to the ton, and in the 400-ft. level from the main shaft assaying 5 oz. A 5-ft. lode has been cut at the 500-ft. level from the No. 6 shaft with an assay value of 4½ oz. Powerful winding plants have now been installed at three of the shafts and an additional air compressing plant to drive 30 drills has been shipped from America and should shortly be at work. The company still possesses a large quantity of tailings remaining to be treated, for which no credit has been taken in the accounts.

THE DOUGLAS PIPE-CUTTING AND THREADING MACHINE.

This little machine has been expressly designed to meet certain existing conditions inseparable from the use of all pipe-cutting tools. Its make-up takes into account the fact that the use of a pipe-cutting machine carries with it much treatment closely resembling abuse at the hands of the unskilled labor constantly employed to operate it.



THE DOUGLAS PIPE-CUTTING AND THREADING MACHINE.

In this machine ample strength and entire simplicity of construction are supplemented by a notable compactness of design and the least possible weight compatible with the strength required to withstand rough handling. As shown by the cut, the machine has a solid bed-plate by which it can be attached to any bench or plank with two bolts or lag screws. It weighs, complete, with all of its dies, guides, etc., but 75 lbs., and consequently is easily carried about, or, by removing the two steel operating levels, it can be packed in a small box for shipment, its actual outside dimensions being but 18 in. long by 8 in. wide by 15 in. high. All of the gears are machine cut, the small ones being of machinery steel, forged solid on the shafts, and with it one man can easily cut off and thread 2-in. pipe. It is fitted with two speeds, of which the faster one can be used to back off the die after cutting a thread on a large pipe with the slow speed—a considerable saving of time. The ratchet cut-off attachment is very simple and effective in operation, its knife being automatically fed up to its work by means of a small star wheel, which engages with a projection from bed-plate provided for that purpose. The gripping chuck, or vise, is self-centering, with drop-forged tool-steel jaws, and all parts of the tool are interchangeable. The machine will cut off and thread pipes from ¼ in. to 2 in., inclusive; will cut long screws and close nipples, and it is furnished with a complete set of solid dies and the necessary guides for that range of sizes. It is sold by P. Hollingsworth Morris, of Philadelphia. It would be a very convenient tool in many mines and mills.

PEAT IN RUSSIA.—On the initiative of the Minister of Ways and Communications, and in the presence of M. Hilkoff, the head of that department, the foundation of the first peat-fuel factory in Russia was laid a few days ago at the station of Redkieff, on the Nikolaieff Railway. The factory is modeled on the system of the peat-fuel works at Oldenburg.

GERMAN COAL PRODUCTION.—The collieries comprised in the Rhenish-Westphalian Coal Syndicate put out together 4,452,000 tons during last July, constituting the largest quantity that has hitherto been attained in a single month, although less by 5¼ per cent. than the apportionment figure. The demand, however, is far from being met, large customers constantly applying for increased consignments that cannot, however, be entertained. During July also the Westphalian Coke Syndicate forwarded to its customers 660,200 tons of coke, or 9 per cent. more than during the previous month. Recovery ovens are becoming more and more general in Germany; and at the present time the market is favorable for the sale of the by-products, tar and benzol being much in request, there being a tolerably regular outlet for sulphide of ammonia, and the demand for ammoniacal liquor being met with difficulty.

MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

(We shall be pleased to receive specimens of ores and minerals, and to describe and classify them, as far as possible. We shall be pleased to receive descriptions of minerals and correspondence relating to them. Photographs of unusual specimens, crystals, nuggets and the like, will be reproduced whenever possible. Specimens should be of moderate size and should be sent prepaid. We cannot undertake to return them. If analyses are wanted we will turn specimens over to a competent assayer, should our correspondent instruct us to do so and send the necessary money.—Editor E. & M. J.)

206.—Spodumene.—Some fine spodumene specimens were recently received in Chicago from the Harvey Peak tin mines in South Dakota. The specimens are whiter than usual for spodumene, straight, and show dashes of white mica.

211.—Supposed Asbestos.—H. J.—The mineral you send is not true asbestos, but rather what is known as asbestiform actinolite. True asbestos owes its value to its having separable fibers of considerable toughness. The material you send has not such fibers, cannot be used for the same purposes as true asbestos and probably has very little value.

212.—The Determination of Minerals.—In the rough determination of an unfamiliar mineral the senses should work together; to determine exactly characteristics, one at a time, is laboratory rather than field practice. A trained mineralogist cannot be always sure and prompt in making determinations, and the best that the beginner or the ordinary prospector can hope to do in many cases is to determine a mineral approximately. Minerals show such an infinite variety of color and form and the number of distinct species is so large that an attempt to remember the appearance of all species is not to be recommended. Yet the common species are not many, and with them the prospector should be very familiar. When a strange species is found the most obvious characteristics will be the color and the crystalline form, but these are often insufficient to determine the material, and farther tests are necessary. Only persons of scanty knowledge and little experience give hasty opinions with confidence. It is essential that the mineralogist should know well quartz, feldspar, mica, calcite, hematite, galena, pyrite, sphalerite and chalcopyrite; so well that he can be certain of the mineral by a simple test. In this connection it is well to remember that a mineral of unfamiliar look is more likely to be a rare form of common mineral than a rare mineral. When the mineralogist finds a mineral that looks strange he runs over mentally the characteristics of the common minerals most resembling it, and then by a simple test can often decide definitely. Thus, albite feldspar and barite may have the same color and the same general form, but a test of hardness with a knife blade would settle all doubt, to say nothing of barite feeling noticeably heavy. Beryl and apatite occur in green hexagonal crystals, but beryl is much the harder. A test with a piece of quartz settles all doubt. Much can be determined by hand and eye, however; often the form and structure of the mineral, its cleavage, color, luster and transparency. Then should come tests for hardness; a calcite crystal, a steel knife blade and a quartz crystal in the majority of cases will show the hardness with sufficient accuracy. The color of the streak or powder left in making the hardness test is often of importance and must be noticed. A magnetized knife blade will determine magnetite and pyrrhotite at once. Specific gravity tests need special apparatus for exact work, but if the mineral feels noticeably heavy the fact is often important. The tests of the mineral and its feel are important tests.

Having exhausted the simple tests and being still in doubt, the student may try chemical tests. Dilute hydrochloric acid will make bits of calcite effervesce briskly, while other carbonates will effervesce in concentrated or hot hydrochloric acid. The odor of sulphuretted hydrogen is easily detected when effervescence takes place with warm acid. The smell will show that the mineral effervescing is not a carbonate but a sulphide. The solution obtained may be tested for copper or iron, and if the mineral is insoluble the fact is of importance. If the mineral is still undetermined resource to the blow-pipe is necessary. Heating any mineral of metallic luster in the open tube will determine the presence of sulphur, arsenic, antimony and mercury; the closed tube tests will confirm those of the open tube. Heating on charcoal will show the presence of lead or zinc, also in many cases, by the addition of soda, of any reducible metals, as lead, copper, silver, tin, etc. To obtain reliable results in the above tests pure mineral should be used; this is particularly true in the case of sulphide ores. Often such ores are not a single distinct mineral, but a mixture of minerals. Any mixing of these various minerals in making tests will vitiate results.

If, after this procedure, the mineral is still undetermined, recourse should be had to some complete determination table, and if the mineral is a distinct species, a person having a little skill in using the blow-pipe can soon determine it.

QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot give professional advice, which should be obtained from a consulting expert. Nor can we give advice about mining companies or mining stock. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers must send their names and addresses. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

Clay Deposits.—Can you refer me to any book or article giving directions as to prospecting or examining deposits of brick clay?—H. R.

Answer.—Some excellent remarks on the examination of clay deposits were contained in a paper entitled "A Geologic and Economic Survey of the Clay Deposits of the Lower Hudson Valley," read before the American Institute of Mining Engineers in February, 1899, by Mr. Clemens C. Jones. In this paper the author described the methods adopted in making a general survey of the deposits mentioned, and these would probably meet your case.

Spiegleisen and Ferro-Manganese.—Can you tell me just what is the difference between spiegeleisen and ferro-manganese?—A. C.

Answer.—Both spiegeleisen and ferro-manganese are used in making steel; the difference between them is in grade. Spiegeleisen is pig iron containing varying proportions of manganese up to 30 per cent., usually between 20 and 30 per cent. Pig iron containing from 30 to 60 per cent. manganese is low grade ferro-manganese and over 60 per cent. Mn, high grade ferro-manganese. The usual commercial standard for high-grade ferro. is 80 per cent., and it is quoted on that basis.

Manganese Ores.—Where is the line drawn between manganese ores and manganiferous iron ores?—P. W. B.

Answer.—It is a little difficult to draw the line exactly. The usual commercial standard for manganese ores is 50 per cent. metallic manganese; but the large steel companies take ores as low as 40 per cent. as manganese ores. Most of the ore imported runs about 50 per cent. Where the tenor of the ore in iron is equal to or greater than that in manganese it is certainly a manganiferous iron ore; but there is a margin in which it is difficult to define its status exactly. In this country the manganiferous iron ores exceed the true manganese ores in quantity very largely.

Sulman Gold Ore Treatment.—I have seen some notice of a patent taken out for the extraction of gold by the use of a sulphide of one of the earth metals, such as sodium. Can you refer me to it?—L. J. J.

Answer.—The patent to which you probably refer was issued in England to H. L. Sulman. It is No. 11,001 of 1898, and is for extracting gold from its ores by means of the polysulphide of an alkali or an earth. The ore is treated at a temperature of 85° to 100° C. under a 30 per cent. solution or under pressure with a 15 to 20 per cent. solution, and the gold is obtained by electrolyzing the hot solution, the polysulphide being at the same time regenerated. The apparatus as described consists of two steam-jacketed vessels connected together at the lower ends by a pipe with a two-way cock for supplying and transferring the liquid and at the upper end by a similar pipe also with a three-way cock for supplying steam and pressure.

PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects, issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending September 11th, 1900.

657,515. SUBAQUEOUS ROCK-BREAKER. Barton H. Coffey, Philadelphia, Pa. A subaqueous rock-breaker consisting of a tubular caisson closed at top and open at bottom, in combination with a heavily-weighted chisel vertically movable in the tubular caisson, means for elevating the chisel in and dropping it through the caisson and means for forcing compressed air into the caisson to maintain it substantially free from water.

657,519. APPARATUS FOR REPAIRING DRILLS. Perry L. Crossman, Joplin, Mo. A steam swaging-machine comprising uprights, a cylinder carried by the uprights at the upper ends thereof, a crosshead slidably engaged with the uprights and having a spring-receiving recess and a communicating guideway, a piston in the cylinder and having a rod passed through the guideway and into the recess, a spring in the recess, a head upon the rod engaging the spring, a base for the uprights, ears upon the base, a drill-holding frame pivotally mounted in the ears, a stop-bar upon the uprights in the path of movement of the drill-frame to retain said frame in operative position, and steam supply and exhaust connections with the cylinder, the cross-head having a hammer connected therewith for engagement with a drill in the frame.

657,537. APPARATUS FOR FEEDING COMMINUTED FUEL TO FURNACES, ETC. John F. Hay, Erie, Pa., assignor to J. P. Metcalf B. J. Walker and G. R. Metcalf, same place. The combination of a receiver, having a discharge-opening to which the fuel is delivered by gravity; a retarding-surface below said opening for checking the discharge by gravity; and an air-blast mechanism arranged to direct the blast from beneath the discharge-opening upon the fuel lodged upon said retaining-surface and to feed the fuel therefrom.

657,547. UNLOADING APPARATUS. Jacob W. Kamm, Atwood, Ill. An apparatus comprising a trackway having hangers, a traveler mounted upon the trackway for movement therealong, a lever pivoted to the traveler for movement to lie above and transversely of the trackway to engage a hanger and hold the traveler from movement, a latch carried by the traveler and a bucket adapted for engagement with the latch.

657,553. ORE-CLASSIFYING APPARATUS. John S. Loder, Ouray, Colo., assignor of three-fourths to Alexander Cuninghame, Birmingham, Ala. An apparatus consisting of a series of V-shaped receptacles connected at their upper ends by suitable conduits and each provided with an outlet at its lower end, a vertical shaft extending into each receptacle and one or more horizontal diaphragms carried by said shaft, each of said diaphragms being provided with downwardly-projecting wings, located out of radial alignment with each other, and means for adjusting said shaft to vary the space between the diaphragms and the walls of the receptacles.

657,567. SUCTION-PIPE FOR DREDGES. Arthur W. Robinson, Milwaukee, Wis. The combination of a swiveling elbow-joint connecting the pipe to the dredge, a joint adapted to horizontal movement near the elbow-joint, a universal joint about midway of the pipe, and a drag at the lower end of the pipe.

657,579. FUEL INJECTOR AND BURNER. George White, Jersey City, N. J., assignor to David Grear and Elisha G. Selchof, trustees, New York, N. Y. In a furnace, the combination of means for feeding coal-dust into the combustion-chamber and means for injecting a fluid fuel into said chamber, the flame of the fluid fuel being directed across the path of the coal-dust in order to ignite and mechanically distribute the body of coal-dust.

657,605. COATED METAL PIPE. William Lacy, Los Angeles, Cal. A pipe comprising a strong inner shell; an outer coating of grains of hard inelastic material; and an intermediate cushioning-body.

657,618. DUMPING-CAR. Jay B. Rhodes, Harvey, Ill., assignor to Frederick C. Austin, Chicago, Ill. A dumping-car comprising a tilting receptacle mounted upon a suitable truck or body frame, a side board arranged to close the open side of the receptacle when the latter is in a horizontal position, the side board having arms which are pivotally connected with the said receptacle, and suitable supports or stops being provided for supporting the arms during the tilting of the receptacle; the point of contact between the stops and arms

shifting lengthwise of the latter as the receptacle tilts, the side board serving to counterbalance the load.

657,628. FILTER-PRESS PLATE. John E. Turney, Louisville, Ky., assignor to the Turney Drier Company, Chicago, Ill. A plate for a filter-press, comprising a back or central element superficially channeled or grooved; an open-meshed wire screen applied upon the grooved surface; a sheet-metal plate having perforations in the form of long, narrow slots, applied upon the wire screen; and suitable means for binding said elements together.

657,646. APPARATUS FOR RECLAIMING TIN AND ZINC FROM TINNED AND ZINC SCRAP. George B. Cruickshank, Birmingham, Herbert R. S. Coleman, Smethwick, and Percival Cruickshank, Birmingham, England. The combination of a vat having suspended therein a revoluble reel, with flanges carried in bearings, with circumferential revoluble perforated anode-drums, such drums and their interiors being connected to the positive pole of a battery or dynamo, and cathode-plates connected to the negative pole of a battery or dynamo.

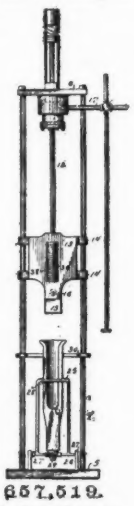
657,647. TUBE-ROLLING MACHINE. Charles L. Curtis, New York, N. Y., assignor, by mesne assignments, to the Nordlinger-Charlton Fireworks Company, same place. A tube-forming machine comprising a mandrel having a longitudinal slot open at one end and curved near its open end, and adapted to receive the edge of a strip while rotating, and means for supporting and rotating said mandrel.

657,652. CARBURETER. Charles Forth, Elizabeth, N. J., assignor to E. P. Reichhelm, Bayonne, N. J. The combination of a closed mixing-chamber provided with a suitable outlet, a vaporizing-chamber connected therewith, and a blast-pipe also connected therewith, in such manner that the force of the blast continuously causes its admixture with the vapor.

657,670. STEAM-ENGINE FOR PUMPS. Joseph E. Normand, Watertown, N. Y., assignor of one-half to Joseph R. Ellicott, Nyack, and Charles A. Ball, New York, N. Y. The combination in a steam-engine for pumps with a cylinder and piston mounted therein, of a steam-operated main valve for controlling the admission and exhaust of steam to and from the cylinder, a primary valve adapted in its movement to control the movement of the steam-operated main valve, a reach-sleeve and an actuating-rod.

657,671. PUMP-VALVE ACTUATING MECHANISM. Gustav B. Petsche, Philadelphia, Pa., assignor to the Southwark Foundry and Machine Company, same place. The combination with a valve leading to or from the plunger-chamber of an actuating-cylinder, a piston operatively connected to the pump-valve, a conduit leading to the actuating-cylinder from the pump-chamber and a pilot-valve controlling the admission and exhaust of the fluid from the pump-cylinder.

657,689. HOISTING APPARATUS. Hans C. Behr, San Francisco, Cal., assignor to Fraser & Chalmers, Chicago, Ill. The combination with the winding-drum, of a truck or carriage arranged in close prox-



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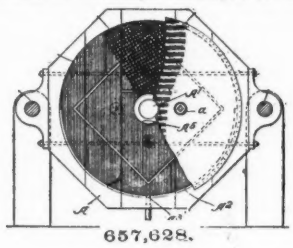

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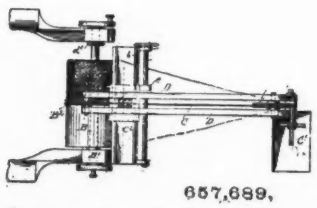

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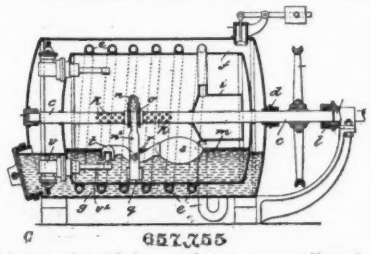
imity thereto, a sheave-frame pivoted at each end, a rope-sheave mounted at each end of said frame, and of means whereby the carriage is caused to travel lengthwise of the winding-drum in order that the rope-leading edge of the sheave mounted at such end of the frame shall move within a plane tangent to the winding face or side of the drum in correspondence with the laying on or off of the rope or cable.

657,717. PROCESS OF MAKING PHOSPHATES. John C. Wharton, Nashville, Tenn. A process consisting in liberating hydrochloric acid from ammonium chloride by the admixture of sulphuric acid; passing the evolved hydrochloric acid into a mixture of phosphate rocks and water, effecting solution of the phosphates; separating the phosphatic solution from the undissolved matter; precipitating the phosphates from the phosphatic solution; separating the precipitated phosphates from the liquid portion containing calcium chloride and ammonium chloride; precipitating the calcium from the calcium chloride, separating the precipitate from the ammonium chloride; adding other ammonium chloride to supply any deficiency and using the ammonium chloride as at first, and consecutively.

657,755. AIR COMPRESSING AND CARBURETING MACHINE. Adolphe Bouvier, Lyons, France. The combination of a stationary outer cylinder or chamber, a hollow shaft traversing the same and having perforations in its walls, an inner drum secured to said shaft, means for rotating said shaft and drum, a spiral tube located on



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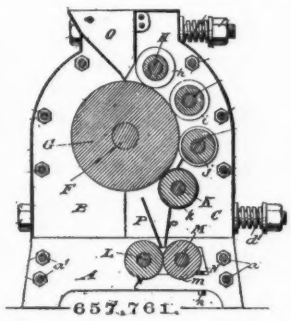
the periphery of said inner drum, a smaller drum located within the inner drum and forming an enlargement of one end of said spiral tube, said tube adapted to convey fluid from the outer cylinder to the inner drum, an offtake-pipe registering with the hollow rotatable shaft, and means for automatically discharging the surplus liquid accumulating in the inner drum into the outer cylinder.

657,736. ELECTRIC FURNACE. William S. Horry, Sault Ste. Marie, Mich., assignor to the Union Carbide Company, Chicago, Ill. The combination with an electric furnace constructed for the continuous delivery of carbide, of pointed clamp-screws mounted outside of the furnace and movable inward to nip off the finished product as it is delivered from the furnace, and a movable furnace-bottom constructed and arranged to support the weight of the contents of the furnace and of the product from underneath and to carry the product and present it between the points of the screws.

657,753. AIR ACTUATED PUMP. Frederic Z. Bartell, Sioux City, Iowa. The combination of a cylinder, a double piston-head therein, a coil-spring for drawing the pistons up, a valve in the upper head of the piston adapted to be operated by a rod passing through the cylinder, and through a slot in the stem between the two piston-heads.

657,761. PULVERIZER. Joseph Davison, New York, N. Y. The combination with a smooth-faced large grinding-roll, of a plurality of smaller grinding-rolls having their ends of uniform diameters, the said ends being normally in direct frictional engagement with and driven by the large grinding-roll, each of the said small grinding-



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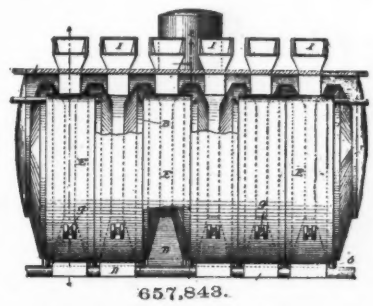

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rolls having a shallow circumferential groove therein intermediate its ends, the grooves in the several small grinding-rolls being of gradually-lessening depths from the top small roll to the bottom small roll for producing successive reductions of the material being treated.

657,770. CARBURETER. Samuel R. Hedrick, Spencer, Md. The combination of a transparent carbureter vessel, a removable top, a liquid-supplying pipe attached to said top, a regulating-valve, a reserve-supply tank, an air-supplying pipe, a gas-outlet pipe, a receiver, a check-valve in said outlet-pipe.

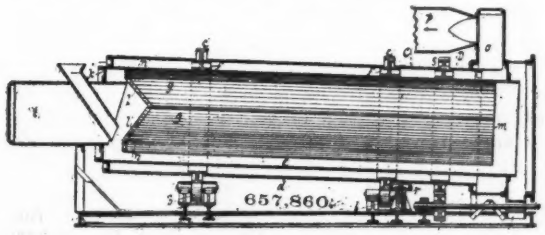
657,799. PROCESS OF MAKING ASPHALTIC COMPOSITION POWDER. William W. Varney, Baltimore, Md. The process consists in mixing asphalt rendered fluid by means of heat and a solvent whose boiling temperature is above the melting-point of said asphalt with a powder the particles of which are to be coated by said fluid asphalt, and removing the solvent by means of heat.

657,815. HOIST. William T. Eades and Edmund Allday, Small Heath, near Birmingham, England. A shaft provided centrally with a helix, a hand-wheel mounted on the helix of the shaft, and a load-pulley loosely mounted upon said shaft at each side of said wheel and adapted to be operated by frictional engagement with said wheel.

657,824. CONVEYING APPARATUS. Robert T. Jenney, London, England. The combination with a motor forming the operating means of same, of means controlled by the carriers for stopping the motor when such carriers are not in use.

657,843. APPARATUS FOR UTILIZING HOT SLAG FOR HEATING PURPOSES. James L. Wells, El Paso, Tex. A receptacle provided with a plurality of ribs or corrugations on its exterior surface, the opposing faces of adjacent ribs or corrugations forming sides of a chamber, a plate between adjacent ribs forming the bottom of the chamber, and a hinged plate to close the front of the chamber.

657,860. DRIER. Charles L. Cummings, New York, N. Y. A drum secured within an outer shell and suitably spaced therefrom so as to form



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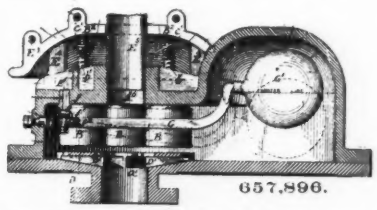
a heating-space, and a series of triangular-shaped hollow blades secured to the inner face of said drum and extending toward one another past the axis of the drum, said blades forming heating-surfaces.

657,868. APPARATUS FOR USE IN COMPRESSING AIR AND GAS. Emile Gobbe, Jumet, Belgium. The combination of an expansion-chamber having a chimney provided with a valve, an igniter in the upper portion of said chamber, a tuyere located in the lower portion of the explosion-chamber and provided with lateral openings, a valved gas-pipe communicating with said tuyere, an air-pipe communicating with the explosion-chamber through the lateral openings of the tuyere, an air-regulating valve, a suction-valve, an air-collector, and a delivery-valve intermediate said collector and air-pipe.

657,896. AIR CONTROLLING VALVE. Ellis L. Rowe, Troy, N. Y. The combination of a valve-chamber, a trapped-air chamber at one



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side of and communicating with the valve-chamber; with a pivoted lever extending into the air-chamber, a float on said lever within the air-chamber, and an auxiliary valve in the valve-chamber controlled by said float whereby the accumulations of air under such excessive pressure as would hold the main air-valves closed will be automatically relieved.

PERSONAL.

Mr. Clarence King is in San Francisco.

Mr. R. H. Campbell, of the Miocene Mine, Horsefly, B. C., is in San Francisco.

Mr. Duncan McVichie is in Bland, N. Mex. He plans to return to Utah next week.

Mr. H. E. O. Green has been appointed secretary to the Buluwayo, S. A., Chamber of Mines.

Mr. J. M. Wilson, manager of the Hearst estate mining properties in Guanacevi, Mex., has been in San Francisco.

Mr. W. A. Farish, eastward bound from Nevada mine examinations, spent several days in Utah.

Mr. D. H. Lawrence is now smelter superintendent for the Waldo Gold and Copper Smelting Company, Waldo, Oregon.

Mr. George H. Robinson has been devoting the past fortnight to his Utah mining interests. He probably will return to Butte shortly.

Mr. Frank Homan, general manager of the Ravan Coal and Coke Company, near Cannelton, W. Va., has just returned from a 2 weeks' vacation.

Mr. C. H. Thompson, assistant superintendent Empire Steel and Iron Company, recently spent 2 weeks in North Carolina examining magnetic ore properties.

Mr. Winchester Dickerson has succeeded Mr. P. N. Moore as manager of the German Bar & Conroy Placer Mining Company's property, Virginia City, Mont.

Mr. J. S. Morton, of Columbus, O., president of the Sunday Creek Coal Company, has for a week been on a business trip through Virginia and West Virginia.

Mr. Henrick Ritter von Hochstettel, an Austrian mining engineer, who recently inspected the Texas Mine in Nevada County, Cal., has departed for Europe.

Mr. William Brown, manager of the Great Kanawha Colliery Company, of Mt. Carbon, W. Va., has just returned from a 2 months' visit to England and Scotland.

Mr. Godwin H. Powel, assistant managing director of the Mt. Carbon Company, Limited, of Powellton, W. Va., has just returned from a 2 months' trip to England.

Mr. Frank Bassett, who for some time has been assistant superintendent of the Pennsylvania Steel Company's plant at Sparrow's Point, Md., has been made superintendent of the works.

Mr. Carl Hering, president of the American Institute of Electrical Engineers, arrived in New York this week on the steamer "Friedrich der Grosse" from an extended tour through Europe.

Mr. Harry P. Townsend, manager of the Penhalenga Proprietary Mines of Umtali, Rhodesia, South Africa, has been visiting the copper mines about Calumet, Mich., and is now on a visit to the Western States.

Mr. Charles C. Derby, formerly superintendent of the New Almaden quicksilver mines, of Santa Clara County, Cal., has returned from Korea, and is now making a buckboard trip along the Mothed Lode of California.

Mr. E. McCormick, superintendent of the Vulcan Copper Mining Company's properties, is in New York City on a brief professional trip. From here he goes to northern Michigan, returning to southwest Nevada about October 12th.

Mr. Walter Hovey Hill, mining engineer, of Warren, Idaho, is now visiting New York. Mr. Hill was the first superintendent of the Buffalo Mine, owned by the Buffalo Hump Mining Company, and is now general manager of the Idaho Little Giant Mining Company, of Warren.

Prof. Fred D. Smith, Prof. B. S. Cushman and Prof. F. A. Richmond, who have been examining the Chainman Mine at Ely, White Pine County, Nevada, returned last week to Elmira, N. Y., to report to the men having an option on the property.

Mr. W. A. Cornelius, superintendent of the 10, 23 and 30-in. mills of the Carnegie Works at Homestead, Pa., has resigned to become superintendent of the operating departments of the National Tube Company's works at McKeesport, Pa. Mr. D. S. Kennedy succeeds Mr. Cornelius at Homestead.

Capt. P. H. Scott has resigned his position as superintendent of the new Consolidated Mill at Dahlonega, Ga., and will enter into business as a consulting engineer and contractor. His successor is Mr. J. W. Foreman, who was formerly connected with the Alaska Mexican Company on Douglas Island, Alaska.

SOCIETIES AND TECHNICAL SCHOOLS.

Missouri School of Mines.—This school at Rolla has opened with the largest enrollment in the history of the institution. There have been over 50 students enrolled to-day from other States than Misouri and several from foreign countries. The grade of the school has been raised and the academic department dropped. making it entirely a technical school. The class of students in attendance are above what the average has been in the past years. The credit for this magnificent showing is largely due to the efforts of Director Ladd.

INDUSTRIAL NOTES.

The new addition to the mills of the American Cement Company at Egypt, Pa., has started work, increasing the total capacity by between 600 and 700 banks a day.

The crucible steel plant of the Cumberland Iron and Steel Company, Baltimore, Md., has been closed down for an indefinite period by the Crucible Steel Company of America, with which it was recently combined.

The Baldwin Locomotive Works, of Philadelphia, Pa., has ready for shipment 6 locomotives for the Belgian State Railways. Six were shipped 2 weeks ago. This completes the order for 12 mogul engines which was secured last spring.

The Kilmourne & Jacobs Manufacturing Company, of Columbus, O., has sold over 200 of its square box rotary-dump steel ore cars fitted with McCoskell wheels and axles to the Coeur d'Alene Hardware Company, of Wallace, Idaho.

The Arthur Losey Iron Works at Point Marion, Pa., has a small blast furnce which is to blow in soon. It is called the Tom Thumb furnace, having a capacity of 28 tons a week. The furnace is to be used for experimental manufacture of a high silicon pig iron by a process of which Losey is the inventor.

The Brown Hoisting and Conveying Machine Company, of Cleveland, O., is shipping to Alexandria, Egypt, by the steamer "Philadelphia," its last consignment of bridge material and structural iron. The shipment is valued at about $200,000, and completes a large order received some time ago.

Wm. Tod & Company, of Youngstown, O., have received an order from the Republic Iron and Steel Company for a tandem compound engine, 40 and 80 in. by 60-in. stroke, to be used for driving the new continuous-mill which the Republic Iron and Steel Company is about to erect at its Brown-Bonnell Works in Youngstown.

The new shipbuilding plant for the Risdon Iron Works, at San Francisco, Cal., will be built by the American Bridge Company, of New York, and will consist of a boiler shop, machine shop and foundry, all of the latest design and most modern description. The Risdon Works has signed a contract with the San Francisco Construction Company for excavating on the site of the old Pacific Rolling Mills for a floating dry dock. It is intended to construct at this point the largest dock of its kind on the Pacific Coast.

The Wellman-Seaver Engineering Company, of Cleveland, O., is said to be working upon plans for 3 large open-hearth furnaces of the Wellman type for Vicker's Sons & Maxim, of Sheffield; also on 2 large open-hearth furnaces for the Northwestern Steel Company, of Middlesborough; 2 furnaces for the Brymbo Steel Company, near Wrexham, and 2 furnaces for Lord Dudley's Round Oak Works, at Dudley. This will give an idea to what extent American concerns are figuring upon foreign work, and particularly in the mechanical engineering line in England and Germany.

The blast furnace which the American Steel and Wire Company is erecting on Neville Island near Pittsburg, Pa., is nearly completed and will probably be blown in within a few months. The delivery of ore has begun and is being carried on rapidly in order that there may be enough on the island to carry the furnace through the winter. The capacity of the furnace will be 600 tons per day. Work on 3 other furnaces will begin shortly. Julian Kennedy, of Pittsburg, Pa., has completed the plans for them. Each of the 4 furnaces will be 103 ft. high and have an 18-ft. bosh. The work on the Bessemer plant will begin during the winter.

The Colorado Iron Works, of Denver, Colo., has ready for shipment 2 36 by 180 copper matting blast furnaces, with Nesmyth patent jacket and water vaporizers for the Rocky Mountain Smelter at Florence, Colo. The firm is building 15 slag trucks with automatic dump and self-riding bowls for San Luis Potosi, Mex.; a 50-ton concentrating plant with Bartlett tables for the Guggenheim Exploration Company, 1 car-load of cast iron water jackets for the Mountain Copper Company, at Keswick, Cal., and a 25-ton concentrating plant with Bartlett tables to be erected in Georgia. Among recent minor shipments have been a 48-in. U pipe hot-blast stove to the Ducktown Sulphur and Iron Company, at Isabella, Tenn.; and a 32-in. U pipe stove to the Mountain Copper Company, Cal.

The La Follette Coal, Iron and Railway Company, La Follette, Tenn., states that its new blast furnace contracted for by Walter Kennedy, of Pittsburg, is under construction. The furnace shell and stoves were sublet to the Rarig Engineering Company, of Columbus, O. The furnace stack is 20 by 95 ft., and the 4 stoves are 18 by 90 ft. The furnace is being equipped with the Kennedy automatic loading equipment. The stoves are of the Cowper-Kennedy pattern. The stock house is 70 by 160 ft. The furnace is to be completed by February 15th, 1901, and is expected to make 350 tons of coke iron per day from ores here, which contain about 50% of metallic iron. The furnace will be known as the "Searles Furnace." The company will also complete 300 new beehive coke ovens. In addition to the 1,500 tons per day of coal going to the coke ovens, it will be producing, by December, about 5,000 tons per day of coal for domestic and steam purposes.

TRADE CATALOGUES.

The Westinghouse Electric and Manufacturing Company, of Pittsburg, Pa., sends out an interesting 32-page pamphlet entitled "Drop in Alternating Current Lines," containing a discussion of the subject and givng a method for calculating drop in alternating current circuits. This information is given in good form and should be of considerable interest to engineers who have such calculations to make. The article is supplemented by a description of the Westinghouse type F compensator including tables for setting and instructions for adjusting the instrument.

The firm of H. J. Putman & Company, of Minneapolis, Minn., send out a 16-page pamphlet calling attention to the merits of the famous Putman boots. The company states that it is prepared to make any one of 30 different styles to order on receipt of a properly filled order blank. The company states also that its boots are water-proofed by a special process, are hand-sewed and are made with light, medium or heavy soles, as desired. That sportsmen, prospectors, lumbermen and engineers appreciate the company's footwear is shown by the long list of testimonials given.

The American Rock Drill Company, of New York, has issued a 44-page catalogue of its diamond-pointed core drills, entitled "The Diamond Drill and Its Work." The pamphlet contains more than a description of the company's drills, which range from the hand-power drill to heavy prospecting drills capable of sinking holes over 1,500 ft. deep; it contains reports from many sources on the cost of sinking drill holes in different kinds of rock and on methods of prospecting underground. The figures of cost include so many varieties of rock in many sorts of mines that should be of great value in estimating the expense per foot of diamond drilling.

The Electrogravure Company, of Leipzig-Sellerhausen, Saxony, has sent out pamphlets printed in good English describing its process of engraving dies, matrices, molds, patterns, etc. In this process the model to be copied on the die is made of a porous gypsum mixture which is immersed in a solution of ammonium chloride. A moist surface in relief is thus produced on which the steel plate to be etched is laid as an anode while the cathode of the selected metal is dipped in the electrolyte. By an ingenious contrivance, the decomposition products, carbon, etc., on the face of the steel plate are automatically removed. The company is prepared to fill orders for etching, or furnish complete electro-engraving outfits.

The General Electric Company, of Schenectady, is distributing a 92-page pamphlet on the subject of "Aging of Transformer Iron," containing 5 important articles that have been issued regarding this subject: "The Aging of Transformer Iron," by Prof. W. Elwell Goldsborough; "On Slow Changes in the Magnetic Permeability of Iron," by Mr. W. M. Mordey; "Effects of Prolonged Heating on the Magnetic Properties of Iron," by Mr. S. R. Roget; "Hysteresis in Sheet Iron and Steel," by Mr. Arthur Hillyer Ford, and "The Aging of Transformer Steel," by Mr. J. A. Capp. This pamphlet contains information of inerest to every central station manager, and is furnished free upon application to the General Electric Company.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods of

any kind, and shall be pleased to furnish them information, catalogues, etc.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Enginering and Mining Journal" are not brokers or exporters, and have no pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

ALASKA.

Cape Nome.

A disastrous storm is reported to have swept the Cape Nome region September 11th, 12th and 13th. A number of barges and lighters were driven ashore and totally wrecked. All along the beach for miles east and west of Nome the wind and water have created havoc with tents and mining machinery. Andrew A. Ryan, of Los Angeles, was drowned. Several captains and seamen on small tugs are missing, and it is thought they are lost. Fully 500 people are homeless, while the loss to property and supplies is over $500,000. Many of the Front street buildings abutting on the beach have been damaged. Numerous small buildings were swept completely away. The heaviest individual losers are probably the Alaska Commercial Company and Wild Goose Mining and Trading Company. A serious loss is the disappearance of nearly 2,000 tons of coal. Captain French, in command of troops, has thrown open the Government reservation to those made homeless by the storm, and will extend such other assistance as is possible.

ARIZONA.

Cochise County.

Commonwealth Gold Mines Company.—There are about 100 men at work rebuilding the mill at Pearce and sinking a new 2-compartment shaft. The old shaft will be used entirely for pumps and for a ladder way. Extensive surface improvements are under way.

Yavapai County.

The Jerome "News" says that at Morenci and Clifton miners and timbermen receive $3 for 12 hours work and the laborer $2 for twelve hours work. In Jerome the miners and timbermen are paid $3.50 for 8 hours work, feeders $3.75 for 8 hours, tappers $3.75 for 12 hours, and the lowest wages paid unskilled labor for a 10-hour day is $2.50.

Empire.—This mine, on Groom Creek, 7 miles from Prescott, has a 10-stamp mill of 1,000 lbs. each, and a cyanide plant; S. S. Jones is superintendent.

Warren.—W. Rowe is shipping 100 tons of ore to Pickerell's mill for concentration from this mine near Prescott.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Defender.—It is reported that this property, near West Point, has been sold for $100,000, and that a payment of $10,000 has been made. The mine is remarkable from the fact that working expenses have been paid from ore taken from the shaft while sinking 325 ft. Some of the ore was milled in the 4-stamp mill, and some of the high-grade was shipped to the smelter.

Calaveras County.

(From Our Special Correspondent.)

Mutual Mining and Milling Company.—This Boston company is developing the Old Waters, now known as the Lucky Boy Mine, on the Copperopolis Road. The vein matter is said to be 40 ft. wide, milling from $4 to $7 per ton in free gold. U. T. Hussey is superintendent.

Oriole Mining Company.—At the last meeting of the stockholders of this company the following officers and directors were elected: F. E. Dunlap, president; J. Lagomarsino, vice-president; A. A. Smallfield, secreteary; J. K. Wagner, treasurer, and F. E. Lane. The Harris Mine, 1½ miles from Angels, is being developed. The shaft is down 440 ft. and on the 400-ft. level is said to be 30 ft. wide, averaging $14.53 per ton. Some of the ore now exposed is reported very rich.

El Dorado County.

(From Our Special Correspondent.)

Cambrian.—The new water power hoist at this mine, near Granite Hill, is being installed and additions made to the concentrating plant. New buildings are also being erected.

Kerr County.

Antimony Ore.—The first car-load of antimony from the Wild Rose Mine was shipped from Johannesburg on September 20th.

Mariposa County.

(From Our Special Correspondent.)

Columbia Consolidated Gold Mining Co.—This company has purchased the Lafayette, Eureka, Blackhorse and Alba claims, near Coulterville, from Boglioli & Gatelli for $6,000. A water right on Maxwell's Creek is included. The prospect work has proved very satisfactory.

Hite Cove Mining Company.—This company has been organized with a capital stock of $100,000 all subscribed. The officers and directors are: E. L. Foster, H. G. Perry, A. H. Ward, H. H. Todd and H. C. Ward. The old Hite Mine, located 23 miles east from Mariposa, at Hite's Cove, has been purchased for $46,000 cash and will be developed on a large scale under the superintendency of H. H. Todd. The tailings dump has been found to contain about 33,000 tons, which average $5.25 per ton. Arrangements have been made to erect a cyanide plant to treat these tailings at an estimated cost not to exceed $1.10, including the cost of the plant. D. Carelius, who recently returned from Sweden, will take charge of the plant. The old works were extensive and a large amount of gold was produced. The total depth, including the winze in the tunnel, is 1,200 ft. below the croppings. The tunnel is to be continued about 250 ft. to cross-cut the back ledge.

Nevada County.

(From Our Special Correspondent.)

Gaston Ridge.—The number of stamps at this mine is being increased from 20 to 30 and power for 60 stamps has been put in. The new machinery is on the way to the mine from Colfax. Dana Harmon is superintendent.

Placer County.

Pioneer Gold Mining Company.—The following circular has been sent to stockholders by Secretary Charles H. Howard: "In accordance with the votes past at your meeting held at Helena, Mont., August 16th, the Pioneer-Lynn Mining Company has been organized under the laws of Colorado, with the same number of shares as your company and of the par value of $5 each, for the purpose of acquiring your properties, and invite you to surrender your certificates of stock, in whatever name standing, to Charles H. Howard, its treasurer, 27 Kilby street, Boston before October 22, and at the same time pay 20c. for each share surrendered. You will thereupon receive a receipt entitling you to a similar number of shares of the new company, to be delivered as soon as certificates can be prepared. It was at first proposed to require a payment of 50c. a share upon the exchange of stock, but the sum was reduced to 20c. on the recommendation of the advisory committee appointed by the stockholders. In case all of the stockholders of your company should not exchange their stock those making the exchange will be given the right to take the remaining stock of the new company on paying therefor 25c. a share. If applications should exceed the amount of stock to be disposed of, allotments will be made pro rata."

Trinity County.

Alamo.—A strike of rich cinnabar ore is reported to have been made recently on the lowest level of this mine.

(From Our Special Correspondent.)

Lone Jack.—At this mine on the east fork of Trinity River, 1 mile south from Coleridge, the ledge on the lower level has been struck. This ledge is about 3 ft. in width, assaying $15.00 per ton. With the Enterprise claim on the opposite side of the river the property comprises 10 claims. Four tunnels have been run on the property on both sides of the river.

Tuolumne County.

(From Our Special Correspondent.)

Jumper.—The mill at this mine, south from Stent, has shut down temporarily for want of water for battery purposes. Some of the men have been laid off, but most of the force will be kept at work on repairs.

Pirate.—This mine near Sugar Pine has been purchased by a Salt Lake company, which has been prospecting the property for some time.

COLORADO.

Lake County—Leadville.

(From Our Special Correspondent.)

Carbonate, Fryer and Iron Hills and surrounding territory are the scene of unusual activity. Lessees are working on every hand and in many instances in shafts that have been idle for 7 to 10 years.

Leadville Output.—The daily production is in the neighborhood of 2,000 tons, but a good increase will follow by October 1st. A number of properties, including the Home Company, the Monarch, the Greenback, the Penn and other heavy producers, have completed development work which enables them to increase the output.

Zinc Tonnage.—The tonnage in zinc ores is about 300 tons per day. The new A. M. W. mill will soon be ready and will handle 100 tons per day. The Golob Mill is handling 40 tons a day of zinciferous ores. By October 1st the Maid will be shipping 250 tons a day of such mineral. Arrangements are being made for another export shipment of 4,000 tons of zinc concentrates and zinciferous ores.

American Smelting and Refining Company.—Only the Arkansas Valley plant of the 3 in Denver belonging to this company is in operation. Among the improvements fast nearing completion are the dust chambers through which the smelter fumes and smoke travel almost a mile. There are two sections in this system of flue chambers. One extends beyond the plant a distance of 1,000 ft. and measures 265 sq. ft. in cross section. This improvement alone has cost $135,000. Manager Weddle is also enlarging all of the furnaces and building 2 new ones which when completed will give the plant a capacity of about 1,400 tons a day.

Arnold Leasing and Mining Company.—After working some months at 500 ft. the management has decided to sink 125 ft. deeper and bids for sinking have been received.

Butcher Boy Group.—Lessees, headed by P. L. Kimberly, have begun work on the deep shaft.

Cyanide Proposition.—A lease and bond for 5 years has been secured on the Jennie June, Golden Gate and L. L. claims in the northern part of the district. Maanger A. H. Webber is to build a cyanide mill to handle the ore from a vein 1 to 8 ft. wide from which it is said 50 tons a day of $14 ore can be had. Both the Jennie and L. L. are opened by old shafts and drifts which are to be used in prospecting.

Downtown Mining Company.—Options have been secured and part payments made on mineral rights of 150 lots in the residence portion of the city. W. G. Reed, of Boston, is heavily interested and Mr. J. A. Ewing, of this city, is president.

Horseshoe District.—A fine body of iron sulphide is reported cut in a claim next to the Last Chance.

Ibex Mining Company.—A large amount of development and prospecting work is being carried on, some 150 men being employed. Shipments average over 8,000 tons per month of oxidized and sulphide ores.

Midas.—This property is shipping almost 200 tons a day of good iron ore, the increase being due to the opening up of the ore body on the 2d level, 25 ft. below the 1st.

Montgomery.—This new deep shaft is down 300 ft., where cross-cutting has begun for the upper levels. A number of good leads were encountered in sinking.

Penn Mining Company.—This property on the old Breece-Iron ground has opened up enormous ore bodies and shipments now average 250 to 300 tons every day.

Valentine Mining Company.—Sinking on No. 1 shaft is resumed, a station has been cut and a pump installed. The shaft will now be sunk to contact. Nos. 2 and 3 shafts are less than 100 ft. deep.

Pitkin County.

Percy Consolidated.—This mine is sending down about 70 tons daily. The spur from the Midland Railroad to the Newman Tunnel will be completed and in operation by November 1st. This will permit of a considerable increase in output.

Enterprise.—At this mine in Taylor Park, developments are showing up a large body of ore, most of which is concentrating material, but which contains streaks of very high grade. Some of the latter is being sacked for shipment.

San Juan County.

(From Our Special Correspondent.)

Mining Transfers.—A. M. Jackson to Red Mountain Mining and Milling Company, Yuba Bill Group; F. B. House to John Marino, World's Fair Lode; Arthur G. Robin to S. G. Martin, Calibre Group; Nellie Tulley to C. E. Rose and Della E. Mayers, San Antonia Lode; U. S. to B. W. Thayer, patent on Club and Elk Lodes; Nellie Sulley to W. R. Tripp, Jennie R. Lode; W. F. Mayfield to Red Mountain Mining and Milling Company, Hercules Lode; U. S. to John L. Ester, patent on Ester Lode; U. S. to French Boys Silver Mining Company, patent on Big Giant and Republic Lodes; Thos. J. Hurley to Natalie Mining and Milling Company, Klondike Group and Silver Ledge Lode; U. S. to V. L. Coltman, patent on Mountain Queen and Jura Lodes; Thos. J. Hurley to John H. Haaren, Magnolia and Silver Ledge mill site; Anna M. Hurley to Natalie Mining and Milling Company, Newton Lode; Anna M. Hurley to John H. Haaren, Blue Bird and Mountain Boy Groups; John H. Haaren to Natalie Mining and Milling Company, Blue Bird Group.

Teller County—Cripple Creek.

Stratton's Independence.—To stop the theft of high-grade ore, amounting sometimes to thousands of dollars in a month, the company issued an order requiring all workmen below ground to walk undressed from the changing room to the dressing room. The men struck and the company modified the order by permitting the men to wear their underclothing.

(From Our Special Correspondent.)

Acacia Gold Mining Company.—Adverse reports concerning this company to the effect that the Brady lease had been abandoned are most emphatically denied.

Arno Gold Mining Company.—This company has been granted a 20 years' franchise for mining under certain streets, alleys and public buildings of the town of Anaconda. The town is to

receive a royalty of 7½% of all ores under $50 per ton and 10% for all ores running over $50 per ton. The company has also purchased mineral rights under town lots to the extent of about 6 acres.

Chicago International Development Company.—This company has purchased the lease held by McKinzie and associates on the North 300-ft. of the Sadie Belle. The old lease was canceled and a new one for 2 years with royalties of 25% granted. The leasing company will begin work in a short time. A heavy plant of machinery will be installed on the shaft, which is down about 130 ft.

Currency Mining Company.—This company has granted to J. E. Ridgway, of Philadelphia, a 3-years' bond and lease on its Hale & Holmes Claim on Squaw Mountain for $40,000.

Elkton.—The shaft above the 400-ft. level is being enlarged from 2 to 3 compartments to correspond to the shaft below that level. Retimbering has necessitated the suspension of ore hoisting.

Isabella Gold Mining Company.—It is thought that Snell and associates leasing on the Jack Rabbit No. 2 have cut the same vein from which Wrockloff of the Burns is shipping rich ore.

King Gold Mining Company.—At the annual meeting on September 21st, the directors chosen were: Chas. N. Miller, Curtis J. Smith, James A. Howze, J. A. Clapp and A. C. Labrie.

Modoc Mining and Milling Company.—This company has just paid its regular monthly dividend of 1c. per share. The company owns the Ocean View in the saddle of Battle Mountain and Bull Hill, the K. P. Extension South, and the 92 No. 1 on Squaw Mountain. The Ocean View is well developed and equipped, and was worked under lease until October, 1897. Since then the company has worked the mine and paid dividends quite regularly.

Pharmacist Gold Mining Company.—The affairs of this company are quieter and it is thought that the danger of a lawsuit has passed.

Princess Alice Gold Mining Company.—This company has purchased the controlling interest in the Rubicon Gold Mining Company. The Rubicon owns the Rubie, a patented claim of about 6 acres, which is worked under lease by the Princess Alice Company; in it a rich strike was reported a few days ago. The property will probably be operated through the La Fayett. In addition, the Princess Alice owns the Golconda on Tenderfoot Hill, the Athens and Standard on Guyot Hill, the Hill Side on Gold Hill and others, making in all about 90 acres. Newly elected officers and directors are as follows: Seth Baker, president; Fred Williams, secretary and treasurer; Messrs. C. W. Smith, J. M. Allen and W. S. Morris, with the secretary and treasurer, form the board of directors.

Santa Rita.—This mine is to have a new vertical shaft. There is a 550-ft. shaft on the property, which has not proven satisfactory, and Manager Conant has decided that a new shaft will pay. The strike in this mine has greatly encouraged work on Squaw Mountain.

GEORGIA.

Southern Smelting Company.—This company has offices in the Equitable Building, Atlanta, Ga., and works at Oakdale. The officers and directors are: John McDonough, president; J. Edgar Black, vice-president and treasurer; Edward T. Bradford, secretary; Charles Shuler and Charles F. Alden. J. H. McCoy, ore purchasing agent. The company has just completed its works at Oakdale, and expects to blow in the furnace some time during this week.

Bartow County.

(From Our Special Correspondent.)

Etowah Mining Company.—The Blue Ridge Mining Company, of New York City, has purchased the property of this company, situated principally in and near Cartersville, and comprising 17,500 acres of land carrying iron and manganese ores. Capt. John J. Calhoun, of Cartersville, Ga., has been appointed general superintendent, and Thomas Crabb, of Newark, N. J., has been appointed chief engineer. Mining operations will be commenced immediately.

Lumpkin County.

An Atlanta syndicate has leased a considerable section on the Chestatee River, near Dahlonega, and expects to have a dredge at work before long.

IDAHO.

Elmore County.

Atlanta Gold and Silver Consolidated Mines.—It is announced that the properties at Atlanta belonging to this company have been transferred to an American syndicate represented here by J. C. Johnson, of Lincoln, Neb. The negotiations have been quietly carried on for several months on behalf of the English company by Johnson & Johnson, of Boise. The consideration has not been made public. Mr. Johnson and his associates, it is said, will organize a new company to be known as the Golden Age Mining Company, Limited, with a capitalization of $3,000,000. The present work will be cleared out and retimbered and the mill overhauled and remodeled. The properties involved are located on the famous Atalanta lode.

Idaho County.

Big Buffalo.—The shaft is down to the 200-ft. level at this Buffalo Hump claim. As the shaft progresses the formation gets softer. The 3-compartment shaft on the Vesuvius is also being sunk on by 3 shifts, and the vein shows 15 ft. of ledge matter.

Idaho Copper Mining and Smelting Company.—This company, of Minneapolis, is opening up some copper propositions on Salmon River below White Bird. A diamond drill is to be used, which will extract a ½-in. core from a depth of 2,000 ft. Among other machinery to be placed upon this property is a 51-drill Rand air compressor, and upon its installation the company will begin the construction of a double track working tunnel 1 mile long. The interests of this company are represented by Col. W. A. Moore.

Nez Perces County.

Salmon River Mining and Development Company.—This company has a hydraulic plant on the Snake River at Salem Bar, 30 miles above Lewiston.

The river water is forced by pumps to a reservoir on the hillside and from that carried by flume and ditch to the pressure box. The bar is about a mile long, comprising about 140 acres. The pumping plant consists of one 120-H.-P. boiler and one 60-H.-P. engine, one Smith-Vaile duplex pump, having 14-in. cylinders and 8-in. discharge and forcing 1,200 gal. per minute to the upper penstock, and one No. 8 Erie submerged centrifugal, having a capacity of 1,500 gal. per minute. This water is thrown to a point 50 ft. above the river level and furnishes an additional head of water for races. The bar varies in depth from 6 ft. to about 35 ft. and the giant is used with light pressure and very large nozzle. The sluice flumes are laid on bedrock, Hungarian riffles being used on the sluices. After passing through the grizzly, which screens out the larger rock at the end of the sluice, the gravel passes through the under-current, thence to burlap-covered tables, and lastly through a long string of rock-riffled sluices. The officers of the company are: C. W. Mount, president; P. L. Mallory, vice-president; C. W. Colby, secretary; H. B. Street, treasurer; P. R. Kelsey, manager.

Owyhee County.

Cumberland.—Stoping is in progress and the mill has started. Three or four machines are running in the stopes besides several hand drills. The pumping plant recently installed in Mahogany Gulch, operated by compressed air, conveyed from the mill, is working well, as is the new compressor and the big hoist. Eric Smith is foreman in the mine, T. D. Babbitt assayer and mill foreman, and John S. Norton master mechanic. About 60 men are employed.

Great Republic.—The shaft at this Silver City mine is down about 75 ft., showing good values. The cross-cut is being pushed ahead rapidly. About 20 men are on the pay-roll.

War Eagle.—The tunnel at this Silver City mine is in over 2,100 ft.

Shoshone County.

Amador.—This company, near Wallace, is considering propositions for putting in a concentrating plant. The company has now, according to reports, 2,000 tons of copper ore on the dump. An air-compressor, pump and hoist are to be installed.

Washington County.

Decorah.—The tunnel in this claim in the Seven Devils District has cut the vein located by a diamond drill. The vein is reported 45 ft. thick where cut.

MARYLAND.

Allegany County.

Hungry Hill.—As the result of the discharge of several of their number for circulating a petition for the appointment of a checkweighman, the miners at this colliery of the Piedmont Mining Company, near Barton, have gone on a strike.

Baltimore County.

Bare Hill.—This old copper mine near Mount Washington is being pumped out after lying idle a number of years. It is said 60 men will be employed at the mine when it is finally pumped out.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—There was a strong demand for zinc ore last week and prices were unchanged, top grade zinc ore selling for $27.50 per ton. A large quantity of ore from the Sphynx Mines at Neck City sold at this figure, also the ore from the King Jack Mine on the land of the United Zinc Company at Joplin. The Oronogo, a portion of the Joplin, the Carthage and Stotts City ore sold at $27 per ton and the average price for lower grades was slightly higher. Lead sold all the week at $23 per 1,000 lbs., the same as for several weeks past. Following is the turn-in by camps of the Joplin district for the week ending September 22:

	Zinc, lbs.	Lead, lbs.	Value.
Joplin	2,106,270	435,180	$37,917
Galena-Empire	1,210,550	196,720	19,088
Carterville	1,181,340	368,230	23,236
Oronogo	740,110	13,280	9,853
Belleville	430,370	8,430	5,789
Webb City	375,510	42,410	5,457
South Jackson	110,790	5,130	1,448
Carl Junction	158,540	.....	2,060
Neck City	983,140	.....	13,518
Spring City	52,680	60,860	2,032
Aurora	729,710	32,650	7,366
Central City	84,610	10,370	1,579
Cave Springs	84,610	10,570	1,297
Granby	220,060	30,300	3,570
Carthage	42,310	.....	529
Springfield	100,880	.....	1,362
Stotts City	41,840	.....	565
Ozark	.....	62,300	2,515
District total	8,639,120	1,285,290	$139,181
Total 38 weeks	354,793,480	41,780,110	$5,965,792

During the corresponding week last year top grade zinc ore sold for $43 per ton and lead for $27 per 1,000 lbs. The lead sales were less than last week by 220,080 lbs., the zinc sales greater by 624,850 and the value greater by $51,718. For the corresponding 38 weeks last year the lead sales were less than this year by 6,575,570 lbs., the zinc sales greater by 27,826,610 lbs., and the value greater by $2,448,480. As compared with the preceding week the lead sales were greater by 146,890 lbs., the zinc sales less by 1,301,740 lbs. and the value less by $7,582.

MICHIGAN.

Copper.

The State Board of Tax Commissioners has added nearly $40,000,000 to the assessed valuation of Houghton County, which comprises the heart of the Lake Superior copper district. This raise, placed on top of the $31,000,000 voluntarily added by the county board, gives an assessed valuation of $120,000,000 to Houghton County, giving it the highest assessed value per capita of any county in the United States. Among some items was an increase of $21,000,000 in the valuation of the Calumet & Hecla Company. It is not likely that the action of the State board will be upheld in the courts.

Baltic.—The contractors have over 50 men at work on the mill foundations. The foundation wall at the rear is to be 29½ ft. high, and the building 195 by 174 ft. The walls for the foundations of the four stamps are nearly completed. Work is progressing on the 60-ft. cut through which trains from the Atlantic & Superior Railroad will reach the mill.

Iron—Marquette Range.

Foxdale.—This mine, at Humboldt, has passed into the hands of Eugene Steeve and other Chicago men and is to be reopened and explored. The mine was worked last winter by Capt. E. Buzzo, of Crystal Falls. The shaft is down 160 ft. and lense of ore 75 by 25 ft. has been opened which assays 61 to 64% metallic iron. The fee is owned by Don M. Dickinson, of Detroit.

Munising Railway Company.—The controlling interest in the Munising Railway and all of the 100,000 acres of hardwood lands owned by the Munising Railway Company has been sold by George C. Fry and his Chicago associates, who recently purchased the road, to William G. Mather, president of the Cleveland-Cliffs Iron Company of Cleveland, O., which company also has an interest in the Lake Superior & Ishpeming Railroad and a number of mines at Ishpeming. Mr. Fry and his associates have secured certain rights for the Munising railway to enter and pass through the city of Marquette, and the sale includes the transfer of these rights to Mr. Mather. The contemplated extension of the Munising railway to Marquette and the connection with the Cleveland-Cliffs' other property there opens up the Munising hardwood country. The Munising railway will probably be connected with the Lake Superior & Ishpeming, giving the Cleveland-Cliffs Company great advantages in making charcoal iron.

Negaunee.—About 275 men are employed in this mine at Negaunee. The shaft drains a considerable area of swamp ground, including the Barasa property, which was abandoned some time ago on account of the water. The pumps now in use handle 2,000 gal. of water a minute. The shaft is down 120 ft., and is in good ore. Shipping from the old shaft goes on steadily. Mr. Piper is superintendent.

Iron—Menominee Range.

Chapin.—The Wisconsin Bridge and Iron Works, of Milwaukee, Wis., has secured a contract for the iron work on a pumping chamber in this mine at Iron Mountain. On the 16th level at D shaft is a Riedler triple-expansion pump, which replaced a large Cornish pump. The limestone formation at this level has cracked badly and to prevent a cave-in which would drown out the mine the chamber is to be lined with steel. The sides will be perpendicular and the top vaulted. Steel beams will form the framework of the sides and curved eye-beams the upper part. The space between the steel work and the rock of the shaft will be filled in with concrete, corrugated iron taking the place of lagging used

in timber work. The inside width of the chamber will be 34 ft., its length 60 ft. and its height from the floor line 15 ft. 6 in., with a space 5 ft. 6 in. deep below the floor, making a total height of 22 ft.

West Ludington.—At this Iron Mountain property, now controlled by the Federal Steel Company, the shaft is down 200 ft. and cross-cutting has started. The land was first tested by Detroit men in 1881, later by George St. Clair, Nat D. Moore and others, but with little result, though large amounts of money were expended. John T. Spencer last year took hold of the land and made a deal with the Federal Steel Company. The showing of ore now is reported extraordinary.

MONTANA.

Jefferson County.

Monach.—At this Basin claim a new strike is reported, one of the biggest of the year in the State. Butte men, Messrs. J. H. Lynch, T. Driscoll and D. Drew, took it a year ago, when there was a 100-ft. shaft, and from it $70,000 worth of ore has been shipped. At 228 ft. they caught the ledge by a crosscut. It is 10 ft. wide at the 200-ft. level of high-grade galena carrying silver, copper, lead and gold. A test sample at the Butte Reduction Works gave high returns.

Madison County.

Mayflower.—At this mine another rich shoot of gold at 950 ft. depth, averaging $160 to the ton, is reported struck. All ore shipped has averaged well. W. A. Clark purchased the mine 4 years ago through J. K. Clark, paying $150,000.

Red Bluff.—At this mine G. B. Turner has just constructed a new gallows frame and new shaft house. The latter will be equipped with 4 large boilers, aggregating 250-H. P. The 100-ton concentrator will be rushed to completion.

Red Chief Mining Company.—This company, near Red Bluff, is putting up a 35-ton concentrator and is also operating the Water Mine.

Revenue.—This mine, near Norris, is shipping to the East Helena smelter and as soon as enough second-class ore is on the dump will start the cyanide plant on another run.

Yak Mining, Milling and Tunnel Company.—The tunnel, in considerably over 8,000 ft., is heading for the Forest Queen property on the summit of Breece Hill. Already 60 tons per day comes from various points along the tunnel, not counting the numerous tributary mines that are enabled to carry on work through the Yak.

(From Our Special Correspondent.)

Boss Tweed and Clipper.—The Boston people who took the option on this group failed to make the payment of $30,000 to hold it, so the deal is off with them. Mr. Morris, one of the owners, it is understood, has given the British-America Corporation an option. That concern now has experts on the ground.

Lake Shore Mining Company.—This company, whose property is on upper Wisconsin Creek, has 9 cars of machinery for the new mill on the cars at Twin Bridges. The stock of the concern is largely held in Cleveland, O.

Silver Bow County.

Centennial.—Work at this old plant has been stopped by O. B. Peck. It was a test to see if the low-grade ores and tailings of Butte, which carry good value, could be worked. Franklin Farrel was the backer. The machinery, it is said, was not adequate, costing only $20,000, and larger machinery may be put in. R. D. Grant suspended operations, he being overseer for Farrel's interests.

NEW MEXICO.

The Caballero Onyx Mining Company.—This company has been organized by El Paso, Tex., business men with a capital of $350,000, divided into shares of $1 each, par value, for the purpose of developing and working the company's onyx claims. The company will, it is said, put in its own manufacturing plant. The officers are: Lew Gilbert, president; H. E. Runkle, vice-president; C. W. Alexander, secretary. The main office is in El Paso, Tex.

Grant County.

Johnny Bull Copper Mining Company.—W. H. Henry has brought suit against this New York Company to establish a vendor's lien upon the Johnny Bull copper mine to secure the payment of $199,000, being the amount of purchase price The mine is situated in the western part of the county.

Mimbres Consolidated Mining Company.—The 20-stamp mill owned by this company, situated on the Mimbres, about 3½ miles below Georgetown, was totally destroyed by fire September 19. The fire was undoubtedly of incendiary origin, as the mill has been idle for several years.

Sierra County.

Prosper Mining Company.—This company, composed of Missouri men, has filed articles of incorporation at Clayton, Mo. The capital stock is $20,000, divided into 200 shares of $100 each, fully paid up. The shareholders are: John Ruhl, of Clayton, Mo.; Edgar Rapp, Clayton, Mo.; Charles Schueler, Manchester, Mo.; Henry J. Graeser, Creve Coeur, Mo.; D. C. Taylor, Manchester, Mo. The purpose of the company is to carry on mining, milling and smelting. It owns a gold claim near Hillsboro. Henry Graeser, a student of the Missouri State School of Mines, at Rolla, Mo., is to go to Hillsboro to take charge of the work.

PENNSYLVANIA.

Anthracite Coal.

A riot at Shenandoah on September 21st, in which one man was killed and several seriously injured, led to Gov. Stone sending several regiment of militia to the Schuylkill and Lehigh districts, where there was most danger of trouble. The presence of the troops has had a sobering effect on the foreign element at the mines and there have been few disturbances during the week. The officials of the United Mine Workers have confined their efforts to getting more Lehigh and Schuylkill men to quit work. The Wyoming operators have made no attempt to start any mines, and of the 75,000 men and boys employed in that region over 65,000 are out. Some washeries are running at Scranton and Wilkes-Barre, but still the only colliery in operation is the West End at Mocanaqua. The Wyoming employers are pursuing a waiting policy, saying that the demands of the labor union are impossible, but that they will not import foreign labor and will receive their employees at any time. In the Schuylkill region the labor organizers have had considerable success and succeeded in closing a number of Reading collieries during the week. Only about 15 collieries are now at work in that district. In the Lehigh District the collieries of the Lehigh Coal and Navigation Company in the Panther Creek Valley are in operation and the collieries of Coxe Brothers & Company are stated to be running with slightly reduced forces. Interest has centered over the situation at the collieries of Markle & Company. This firm had an old agreement with its employees by which differences were to be submitted to arbitration. President Mitchell of the United Mine Workers personally requested Markle & Company's employees to violate this agreement, though John Markle said that the company would stand by it. As a result Markle & Company agreed to some of the demands of the men, but refused an advance in wages and offered to submit the price for powder to arbitration. On the whole, the events of the week have increased the power of the labor organization. The operators state that they will not recognize it, being mindful of past experiences in the anthracite region, and as yet the end of the strike is nowhere in sight. Out of a total of 140,000 employees, considerably over 100,000 are now reported to be idle.

Bituminous Coal.

River Coal Company.—This company recently concluded the purchase from A. B. Ledwith, cashier of the First National Bank of California, of about 1,500 acres of coal in the Fourth pool, on the Monongahela River, at a cost approximating $400,000. The company is an allied company of the new Union Steel Company, and will be the fuel producer for that concern in the future. Arrangements are being made to have the tipples built and mines opened simultaneously with the operation of the new steel plant at Sharon, Pa.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Globe.—David Jones, of Philadelphia, is developing this old mine. A shaft has been sunk 60 ft. on a 4-ft. vertical. Ten men are employed.

Lawrence County.

(From Our Special Correspondent.)

Ground is being broken for a cyanide plant at Crown Hill by a company organized by C. E. Giddings, of Deadwood.

Benedict.—T. W. Gallagher and Edmund Smith, of Rapid City, are operating a 2-stamp mill on this mine, in Hornblende District. The mill was operated by the Homestake Company in the early days. The ore averages, it is said, about $5 per ton.

Cleopatra Mining Company.—The new 100-ton plant on Squaw Creek is treating ore. R. B. Hughes states that everything about the plant is working well. The company is said to have one of the largest bodies of low-grade cyaniding ore in the Black Hills.

Crown Hill Company.—A deal has been made whereby the large quantities of low-grade ore at the Crown Hill mines will be treated by the cyanide process. There are 6,000 tons of ore on the dump.

Ironsides.—Development work is still in progress at this mine on Squaw Creek. The company has been reorganized completely.

Pennsylvania Mining Company.—This company has been organized by Mr. Schenck, formerly of Lead. A fair-sized body of ore is reported encountered on the south side of Deadwood Gulch, 5 miles west of Deadwood. The ground is being patented.

Portland Mining Company.—The new cyanide annex being built at the Baltimore & Deadwood stamp mill will be ready for ore by October 1st.

UTAH.

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week ending September 22d there were sent forward from the several smelteries 29 cars, or 1,204,588 lbs. lead-silver bullion; 4 cars, or 222,959 lbs., copper bullion. In the same week there were shipped from the different camps 99 cars, or 4,623,840 lbs. lead, silver and gold ore, and concentrate products, and 1 car, or 56,250 lbs., copper ore consigned to smelteries outside of the State for treatment.

Marketing Cyaniding Products.—George Moore, who has charge of the Salt Lake department of the American Smelting and Refining Company for sampling products of cyaniding plants, has planned to handle these consignments when this department is closed, on October 1st. Messrs. J. C. Griffiths and H. S. Knight are also arranging to market these products. They are favorably known throughout the inter-mountain field and cyaniding products can be marketed in Salt Lake as favorably as in the past.

Carbon County.

(From Our Special Correspondent.)

Pleasant Valley Coal Company.—The Executive Committee of the Winter Quarters mine disaster has decided to distribute the relief fund among the beneficiaries in a lump. Up to the present $18,000 has been given out and there remains $94,000 for the 200 entitled to a share.

Juab County.

(From Our Special Correspondent.)

Tintic Shipments.—In the week ending September 21st there were sent forward from the 3 railroad points of the district 1 bar of bullion, 74 cars of ore and 8 cars of concentrates, made up as follows: Mammoth, 1 bar bullion, 5 cars ore, 2 cars concentrates; Centennial-Eureka, 28 cars ore; Swansea, 14 cars; Gemini, 10 cars; Grand Central, 10 cars; Star Consolidated, 6 cars; Godiva, 3 cars; May Day, 3 cars; Yankee Consolidated, 2 cars; Alaska, 1 car; Humbug, 1 car; Joe Bowers, 1 car. Eureka Hill shipped 6 cars of concentrates.

Bullion Beck.—On September 22d, W. A. Farish accompanied Manager Farnsworth underground. There are reports of 2 ore shoots cut in virgin territory.

Joe Bowers Extension.—All the property, real and personal, has been sold at sheriff's sale to satisfy judgment in favor of employes. The property was bid in by judgment creditors.

Summit County.

(From Our Special Correspondent.)

Park City Shipments.—For the week of Saturday, September 22d, there were marketed through the Mackintosh sampler 3,646,900 lbs. of smelter products, contributed by the following properties: Silver King, crude 1,411,830 lbs., concentrates 269,150 lbs.; Daly-West, crude 932,390, concentrates 518,650 lbs.; Ontario, crude 311,370 lbs.; Anchor, concentrates 203,510 lbs.

Crown Point-Ontario.—Judge Hallett has overruled the motion for a new trial made by the Crown Point in the trespass suit against the Ontario. An appeal will be taken to the United States circuit court of appeals.

VIRGINIA.

Alleghany.

Low Moor Iron Company of Virginia has completed its combination cone and log washer at Craig's Valley Mines in Botetourte County and expects to make a large output very soon. The washer plant is said to be the most complete in the South and cost about $20,000.

Fayette County.

(From Our Special Correspondent.)

The Boomer Coal and Coke Company, of Boomer, is having an estimate made for a railroad 2 miles up Boomer Branch from the Kanawha & Michigan Railway, with the idea of opening the Nos. 1 and 2 seams of coal on both sides of the creek on the 1,000 acre lease adjoining its present working territory. Both seams are 6 ft. thick on this tract. The company also is considering opening the No. 2 seam on the river front on the north side of the creek, with the idea of shipping both by rail and river. E. H. Coxe is superintendent at Boomer.

Falls Colliery Company.—This company, near Kanawha Falls, on the Kanawha & Michigan Railway, is constructing its plant and houses and is to open the No. 2 or gas seam of coal. Fred Pritchard, formerly with the Sun Coal Company, of the New River District, is general manager. John W. Straughn, until recently mine superintendent of the Gauley Mountain Mining Company, of Ansted, is mine superintendent of the new company. The post office is Ferris. The company expects to reach an output of between 900 and 1,000 tons daily from this mine. It has 1,000 acres under lease and the incline will be

about 2,200 ft. long. The tipple will be equipped with a Mitchel dump. The company expects to begin shipping coal by January 1st, 1901. The company will mine with picks for probably the first year, after which it will expect to put in electric mining machinery, getting the power from the power plant at Kanawha Falls.

Rockbridge County.

The Empire Steel and Iron Company has begun to rebuild the railroad to its Victoria Mines property near Goshen, Va. The mines were last worked in 1896. The ore in both old and new workings shows up remarkably well.

WASHINGTON.

Ferry County—Republic.

(From Our Special Correspondent.)

Black Tail.—The upraise on the main vein, 170 ft. north of the crosscut tunnel, is up 31 ft. in a body of milling quartz 5 to 6 ft. wide.

Butte & Boston.—The main shaft is down 265 ft., where a crosscut is in 22 ft. in hard ground, with probably 100 ft. further to run to tap the vein.

Chico.—The crosscut on the 300-ft. level, 100 ft. south of the shaft, shows the vein narrower. The south drift is in 135 ft. on the footwall contact.

Flag Hill.—The east crosscut from the main tunnel is in 68 ft. and in 18 or 20 ft. it may strike a rich vein. At 70 ft. from the mouth of the tunnel a winze has been sunk on a small streak of rich quartz 55 ft. and the vein is being crosscut. Stoping on the ore shoots is discontinued until the custom mills start.

Gold Ledge Consolidated.—A supposed cross vein is being opened at the surface, southwest of the main shaft, assaying in places $12 to $16 per ton. A crosscut is in 60 ft. from the bottom of the shaft to strike this vein.

Mountain Lion Gold Mining Company.—At present 60 men are employed and 3 more 30-ton filtering tanks added to the mill's capacity, increasing it to 100 tons or more per day. Since the mill was built it has been treating about 86 tons of ore per day. It is intended to increase the crushing capacity by crushing the ore to 20-mesh fine by the stamps and to 40-mesh by the Huntington mills, making a difference of 1 to 1½ tons per day to each stamp, or an increase of 20 to 30 tons in all. The management reports an extraction of 90% of the gold and silver from the ore and about $2 per ton left in the tailings. In the mine, Superintendent Wyatt reports there is a reserve of 10,000 tons of ore broken down, in addition to 2,000 tons on the dump. The pay shoot is being stoped on the main tunnel level and 125 ft. below, to a depth of 430 ft. Sinking below that level will start about October 15th. The development work at present consists of drifting on the main vein and crosscutting on the main and 430-ft. levels. The ore broken is sent to the mill without assorting it.

Quilp.—The winze is down 295 ft. below the adit level. A drift is being opened for a pumping station. A fan, driven by the air compressor, is used for ventilation. The water from the winze is raised to this level with a sinking pump and lifted to the adit level. A crosscut southeast has about 25 ft. further to run to strike the vein. It has passed through conglomerate and a 2-ft. stringer of payable quartz. At 160 ft. above this lead a drift has run over 100 ft. southeast, on the vein, in good milling ore.

Tom Thumb.—A pump has been installed at the 280-ft., the cage hung and the west ledge struck at 96 ft. from the shaft. The superintendent says it is from 9 to 10 ft. wide. The ore differs much from that of the east ledge, being clean white quartz, assaying from $6 to $24 with an average of $12 to $18 per ton. The vein carries a talc gouge on the footwall and is supposed to be the one in the old workings and No. 1 and 2 shafts. The working force has been reduced from 25 to 12 men, with only one Leyner drill in use, on account of poor ventilation. As soon as the connection is made with the No. 2 workings the second Leyner drill will start drifting.

WEST VIRGINIA.

Barbour County.

Thaw Brothers, of Philadelphia, have purchased 9,192 acres of fine coal at Century, where extensive mines are being opened. The price paid averages $35 an acre. Four shafts, ranging from 158 to 312 ft. in depth, are being sunk to tap the coal. An electric plant, costing $40,000, is to be installed to furnish power for the mining machines and for lights, and 4½ miles of railroad is being graded to connect the mines with the Baltimore & Ohio Railroad. The firm is also building 1,600 4-room houses to accommodate their workmen.

Fayette County.

Gauley Mountain Coal Company.—This company is putting up 50 additional bee-hive coke ovens at Ansted. They will be ready for use in October. The company is shipping 1,000 tons of coke to Marseilles, France.

FOREIGN MINING NEWS.

AFRICA.

Rhodesia.

The gold production for August is reported at 10,137 oz., a large increase, due to the starting of 2 new mills. For the 8 months ending August 31st the total was 51,830 oz. crude, against 45,414 oz. last year; an increase of 6,416 oz., or 14.1%. The total this year was equal to 42,501 oz. fine gold, or $878,506.

AUSTRALASIA.

New South Wales.

The gold yield of the Colony for August is reported at 28,688 oz. crude, against 45,355 oz. last year. For the 8 months ending August 31st the total was 238,508 oz., against 288,447 oz. last year, showing a decrease of 49,939 oz., or 17.3%. The total this year was equal to 194,310 oz. fine gold, or $4,016,378.

New Zealand.

Exports of gold in July are reported by the Mines Department at 39,678 oz., as compared with 25,838 oz. last year. For the 7 months ending July 31st the total was 218,981 oz., against 218,969 oz. last year. The total this year was equal to 199,355 oz. fine gold, or $4,120,665.

The exports of silver in July were 36,477 oz., an increase of 5,633 oz., or 18.2%, over last year.

(From Our Special Correspondent.)

Gold Exports.—The value of the gold exported during July was £151,853 ($759,265), an increase of £53,616 ($268,080) over the corresponding month of 1899. These figures were erroneously given in my last letter as the export for June, which should have been stated as £132,897 ($664,485).

Dredging.—During the 4 weeks ending August 27th the published returns of the Otago dredges amounted to 5,516 oz., or a weekly average per dredge of 37 oz. The Hartley & Riley dredge still leads with a return of 1,010 oz. for the month.

Owing to the foundries being blocked with work and unable to overtake their orders, new dredges are being completed very slowly, and it will be 2 years or more before many lately floated dredging companies can get to work.

The New Zealand Government has lately had the question of compensation to landholders affected by dredging operations under consideration. It is stated that compensation to the extent of £50,000 ($250,000) has been or is about to be paid, and that ultimately an expenditure of £250,000 ($1,250,000) will probably be necessary to compensate landholders.

Production of Iron.—The Minister of Mines has stated that the Government, with a view to encouraging the establishment of iron smelting works, is willing to give a bonus of £1 per ton on the first 20,000 tons of marketable iron produced in New Zealand. The following conditions have to be complied with: A company has to be formed with a capital of not less than £200,000 ($1,000,000), of which at least £100,000 ($500,000) shall be expended in acquiring land, erecting buildings and the necessary plant and appliances. Extensive deposits of iron ore exist in various parts of New Zealand. The most favorable locality is Parapara, Nelson, where large deposits of hydrous hematite, together with coal and limestone, occur.

Oil Shale.—A strong English company is erecting large works for the production of illuminating and lubricating oil, paraffin wax, etc., from oil shale at Orepuki, in the southern part of the South Island. The same company has acquired and is working the Kaitangata, Castle Hill and Orepuki coal mines.

Coromandel Public Battery.—During the past month the experimental and public battery plant of the Coromandel School of Mines was officially opened. The plant consists of 5 head of stamps, muntz metal tables, berdans, retort furnace, etc. Power is supplied by a 9-H.-P. oil engine.

Hauraki Goldfield.—During the 4 weeks ending August 30th the value of the output from this goldfield was £48,771 ($243,855), a slight increase on the July yield. The principal producers were: Waihi, £24,518 ($122,590) from 8,183 tons; New Zealand Crown, £5,727 ($28,635) from 2,912 tons; Whitekauri, £5,504 ($27,520) from 2,163 tons; Talisman Consolidated, £2,295 ($11,475) from 910 tons; Kauri Freeholds, £2,203 ($11,015) from 1,498 tons.

Komata Reefs Company.—This company's prospects are much brighter than for some time past. The upper levels yielded excellent returns, but were worked out, and crushing had to stop. A low level lately driven proves the existence of payable ore 400 ft. below the upper levels.

Thames Hauraki Company.—This company is making good progress with its shaft, now down 800 ft., to prove the lower levels of the Thames field-field. The shaft is passing through very favorable country rock. A cistern at the 750-ft. level catches nearly all the shaft water.

Waihi Company.—This company is again to the fore with an excellent return, equal to £3 ($15) per ton. The main shaft has been deepened and the company is opening a new level (No. 6) at a depth of about 550 ft., or 680 ft. below the outcrop of the main lode on the top of Martha Hill.

Waihi Grand Junction Company.—This company has been making excellent progress with enlarging and unwatering its main shaft, but an accident to the drawlift pump has stopped work temporarily. The company borrowed a new pump from the Waihi Company.

Queensland.

Mount Morgan Gold Mining Company.—This company reports for the month of August a total of 21,601 tons of ore chlorinated, the resulting yield being 16,457 oz. gold; an average return of 0.76 oz. to the ton.

Victoria.

The returns furnished by the Mines Department for July show that gold production for that month amounted to 69,516 oz., as against 67,494 oz. for the corresponding month of 1899, an increase for the month of 2,022 oz. This brings the total for the 7 months of the current year up to 440,068 oz., as against 465,787 oz. for the first 7 months of 1899, a decrease of 25,719 oz. The dividends paid by public companies amount for the 7 months this year to £265,814.

CANADA.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Rossland Ore Shipments.—The ore shipments from Rossland mines for the 8 months and 20 days ending September 20th amounted to 135,000 tons, valued at $2,160,000 gross.

Slocan Lake Ore Shipments.—The shipments of ore from Slocan Lake mines for the 8 months and 18 days ending September 18th amounted to 2,904 tons. This is inclusive of the quantity shipped from other portions of the division, and has not heretofore been enumerated.

Athabasca.—The report of Manager E. N. Fell for August for this mine at Ymir is as follows: Tons crushed, 430; bullion recovered, $12,525; concentrates, $4,875; total, $17,400. Value of bullion per ton ore, $29.13; value of concentrates per ton ore, $11.23; total values per ton ore, $40.46. Corrected returns for July place the total values recovered at $18,350. The work on the cyanide plant is pushed.

Hall Mines.—The management has ordered from the Jenckes Machine Company one 100-H.-P. 2-drum hoist and two 60-H.P. boilers, to be installed at the 400 ft. level.

The stack will run to the surface through the old shaft. The same company has also purchased a large duplex Prescott pump with 500 ft. of steel cable and other material.

British Columbia—Yale District.

Pyritic Smelter.—The foundations for the standard pyritic smelter in Osoyoos Division have been commenced. About 20 acres have been cleared. The plans for the buildings are being prepared in Denver, Colo., and an experienced smelterman from there will superintend the construction. The daily capacity is to be 200 tons. The machinery is being constructed by the Denver Engineering Works Company.

(From Our Special Correspondent.)

B. C.—This Summit Camp mine has shipped during September 2,000 tons of ore. The shaft is down 272 ft.

Brandon & Golden Crown.—The 4th annual meeting was held at Greenwood, September 18th. The secretary-treasurer's statement showed that altogether 1,866½ tons of ore have been shipped from the mine up to September 15th, the gross value of which was $24,415, on which there were freight and smelter charges amounting to $13,007, leaving net smelter receipts of $11,408. T. Mayne Daly was elected president, W. J. Porter, vice-president; G. W. Collins, managing director; W. L. Orde, secretary-treasurer, and A. Kelly, Senator Kerchoffer, C. L. Jarvis, U. N. Fuller, W. A. Macdonald and James Russell, directors. The shaft has reached a depth of 300 ft.

Cariboo.—The management of this mine at Camp McKinney has begun a new working shaft at the east end of the group. It is 16 by 7 ft. and is to be sunk 600 ft. and thoroughly equipped. A winze is to be sunk from the 400-ft. level and an upraise will be made to the surface. A tramway 1,000 ft. long will connect with the mill, where a 50-H.-P. engine will be installed. A large increase in the working force has thus become necessary.

Yukon District.

United States Consul McCook says of condi-

tions at Dawson and nearby American camps: "More claims have been worked this summer than in any previous season. On account of the extra rainfall there was sufficient water for sluicing. Many owners will work their claims only during the summer, letting them lie idle in winter, as they can dump the dirt or clay directly into the sluice boxes in summer and not have to handle the ground twice. Machinery is found everywhere in the district; no one thinks now of working claims without boiler, engine and pump. The amount of gold sent out to date this season, as per consular invoices, is $12,500,000; it is possible that about $250,000 has gone out without any record. Smallpox has been practically stamped out.

"This Tanana District in Alaska still occupies the attention of prospectors. There is a large area with more streams than in any other mining district so far discovered in Alaska. The cost of transportation to this region is now too high—$1.25 per pound. This, added to the cost of provisions, etc., makes it very expensive to work there. Many miners staked claims and may possibly never return. The mining laws of the United States do not require representation of claims for one year after the 1st of January after recording. This gives owners until 1902 to prospect, practically locking up the country."

SOUTH AMERICA.

Dutch Guiana.

Marowyn Company.—This Philadelphia, Pa., company has shipped from Baltimore for Albina saw-mill machinery, an electric light plant, a steam launch, steel rails and mine cars. The company's mines are on the Surinam River, 21 miles from Albina. At Albina a pier will be built and a light railroad is to run to the mines.

COAL TRADE REVIEW.

New York. Sept 28.

Anthracite.

Articles with scare headlines in the daily press have worked up consumers finely. The scramble for coal that began last week continued into this week, and even men who should know better seem to have lost their heads. The higher prices asked are steadying things a bit, however, and in a few days consumers will be able to look at the situation soberly. In the West dealers seem to be as excited as in the East, and there as here the excitement has caused considerable purely speculative buying. Prices at some points went up with a whoop, notably at Milwaukee. At Chicago, the fact that coal can be brought in by rail in case the strike lasts long enough to keep receipts by lake below normal at the close of navigation, is having its effect, but prices are still firm and advancing. At the head of the Lakes, consumers have sent in a flood of orders, many of which are declined until the companies owning docks know where they are at. Receipts for the past two months have been light, but there is coal enough on the docks to last well into cold weather.

At New York, Boston and Philadelphia the coal man has had a lively time of it. According to reports, no coal is offered at wholesale at Boston. At New York those companies depending on the Wyoming Region are selling only on contract orders. The Lehigh Valley and the Reading are dealing out coal a little more freely. It is reported that one New York coal firm anticipated the strike and laid in a large amount of coal for it—a very profitable undertaking. There are no standard prices. All the companies are declining new orders. Some are selling coal to old customers at a nominal advance, others are making the best of the situation.

The report published yesterday that the strike was virtually settled on the basis of a 10% advance and no recognition for the union lacks confirmation. Undoubtedly, however, the higher powers of the coal companies have been comparing views, and certain political leaders will bring what influence they have against the strike lasting much longer.

At the annual meeting of the stockholders of the New York, Ontario & Western Railway Company on September 26th, the retiring board of directors was re-elected.

A meeting of the directors was held after the stockholders' meeting and Thomas P. Fowler was re-elected president; Joseph Price, vice-president; John B. Kerr, vice-president and general counsel; R. D. Rickard, secretary and treasurer. J. E. Childs was reappointed general manager and Charles S. Whelen chairman of the executive committee.

Bituminous.

The demand for coal in the Atlantic seaboard soft coal trade is very heavy, so heavy that there is an actual shortage at the shipping ports, and this shortage is becoming more pronounced. Prices are advancing and there is considerable speculative buying. The shortage at the tide-water ports is due chiefly to the mysterious action of all the main line roads in keeping cars in short supply at the collieries. Most shippers are getting about 50% of their needs. The roads have been keeping back cars for about 3 weeks. Some time ago the main line roads said the shortage was due to the excessive business coming to them; later they said that the shortage was due to the threatening situation in the anthracite region; now, when pressed for reasons, they evade the point. The anthracite strike and the large number of coal cars released in consequence has not apparently affected the situation in the least.

Trade in the far East is very heavy, but it is throught stocks of soft coal there are really larger than at this time last year. Along the Sound the situation is becoming as bad as it was at any time last fall. The New York Harbor trade is in bad plight, many people are close to the end of their supplies, and some are entirely out. All rail trade has increased to about normal volume. There are still inquiries for export and coal is going abroad steadily. Transportation from mines to tide has improved, though we hear of hold-ups along the lines at particular points. Car supply, as stated, is poor and affects producers generally, though there is a current report that 1 or 2 producers are receiving special favors.

The anthracite strike has tied up a lot of boats and barges in the New York Harbor trade. These are loaded with anthracite and are lying at storage yards or at docks. As a result, the boat rate has advanced from the usual 15c. to 25@35c. to New York Harbor points. In the coastwise vessel market, vessels are plentiful, and ocean freight rates are steady at 85c. from Philadelphia to Boston, Salem, Portland and Portsmouth; 75c. to Providence, New Bedford and Long Island Sound, and 90c. to Newburyport. Speculative prices for Clearfield coal are $2.75@$3 f. o. b. New York Harbor ports.

Notes of the Week.

The Baltimore & Ohio Railroad Company's new coal piers at Curtis Bay are opened for business. Six or 8 vessels can be loaded at this pier at one time. There is yard room and trackage for 2,600 cars. A party of railroad officials, coal shippers and representatives of the Cumberland soft coal mining companies saw 250 tons of coal shot into the hold of the new 6-masted schooner "George W. Wells" in 5 minutes.

Birmingham, Ala. Sept. 24.

(From Our Special Correspondent.)

There is still a very active demand for coal in this State and the mines in every district in Alabama are hard at work. The miners are being given steady employment and while their wages are not as great as they were in June, they are working hard. The railroads are supplying pretty nearly every demand for cars. The railroads are making preparations to incease their equipment in order to handle the increased production at the mines. A fairly good price obtains for the product, also, and the indications are that this will continue.

Chicago. Sept. 25.

(From Our Special Correspondent.)

Anthracite Coal.—A heavy demand for anthracite coal has resulted through the coal miners' strike and coal is therefore sought for so freely that the companies' agents have issued instructions that the price on hard coal be raised 50c. per ton, grate coal now selling at $5.75, egg, stove and nut, $6. Dealers in general are very short of hard coal, having refrained from making heavy purchases for a long time, and even with the threat of a strike staring them in the face many of them refuse to buy beyond actual running requirements. Now that the price is advanced dealers appear to be falling over each other to get in. The advent of fall weather drove consumers to laying in winter supply of hard coal, but in every instance the retail price asked and obtained was $7. Dealers out in the country are getting but little coal, the demand being such from city trade that the resources of the shipping agents are taxed. Already the supply of furnace coal is almost exhausted, at least so say some dealers.

Bituminous coal is once again selling as of old, the near approach of winter and the increased demand from industrial enterprises have made the week a very fair one in point of sales. Again, the increase in cost of hard coal has driven many into the use of the better grades of soft coal.

Many inquiries result in quick business. There is now no weakness in soft coal prices, a few of the better coals having been advanced 10c. to 25c. per ton. Some lines of coal are not seeking much new business and demand is such that they intend limiting orders to 5 tons. A few weeks ago the market was flooded, but to-day there is none too much in stock and higher prices will doubtless soon be asked. Some quotations on bituminous coals are: Brazil Block, $2.55; Hocking Valley, $2.85; Island, Ind, $2.35; Wilmington, $2.50; Pocahontas, $4; Raymond, $3.25; Macker, $3.25; New River, $4.

Cleveland, O. Sept. 26.

(From Our Special Correspondent.)

Reports recently compiled show that the shippers from the lower lake ports, or those on the south shore of Lake Erie, have shipped up the lakes to date upward of 900,000 tons more of coal than during the same period a year ago. As this amounts to about a two months' movement, the enormous shipment of this year may be estimated. The shippers aver that if present conditions prevail much longer they will have all of their coal at the head of the lakes by the middle of October and especially that part of it which depends upon wild tonnage to move it. The docks at the head of the lakes have been hopelessly congested of recent date, but now they seem to be easing off very materially. The shippers have been compelled to turn away many of the boats offered and on the whole the coal shipment was curtailed and the whole market waited for the docks to be cleared. Cleveland shippers are having an abundance of tonnage now, the boats that could not get hard coal at Buffalo stopping in here for their cargoes. Even with this flood of tonnage there has been no change in the carrying rates, 30c. holding good to all ports up the lakes except Green Bay, and this port gets 35c.. The movement of soft coal to the lakes is gradually increasing.

Pittsburg. Sept. 26.

(From Our Special Correspondent.)

Coal.—There is an increased demand for coal this week, but cars are scarce and deliveries are not satisfactory. The railroad companies promise relief soon. The mines of the Pittsburg Coal Company are in full operation and it has all the business it can handle at present. The starting of the rolling mills this week will tax the mines of the Pittsburg District to their fullest capacity. The Carnegie Coal Company, an independent concern, with mines near the city limit, started to mine coal to-day and will have a daily capacity of 600 tons. The Midland Coal Company has been mining coal for several days, but just began to ship this week. Its daily capacity within a few months will be 3,000 tons. The Hickory Coal Company, a new independent concern, this week bought 2,500 acres of coal land adjoining the property of the Midland Company and will begin to develop it at once. It is expected that the new company will be able to mine 3,000 tons daily by January 1st. The Pittsburg & Buffalo Company, another large independent company, began shipping coal this week. It has the best equipped modern plant in the Pittsburg District and the mines will be in full operation within two weeks. These three large independent plants are located in the Canonsburg Field where there is a good vein of gas and steam coal. Despite the opposition the railroad coal combination will soon have there are no indication of lower prices for fuel. The retail dealers have already advanced prices and a further increase is threatened. The Monongahela River Consolidated Coal and Coke Company, the river coal combination, may profit by the strike in the anthracite field. Early in the summer it stocked up the anthracite coal supply at Cincinnati, Louisville and at other Southern ports where it has elevators. The consumption of hard coal in the Southern cities is greater than in Pittsburg, which is the reason the combination carries a large stock. Many of the river mines are still idle, owing to the lack of empty coal boats and barges.

Connellsville Coke.—Both production and shipments fell off somewhat during the week. More ovens were fired, but the working time was reduced. Prices are firmed this week and indications point to higher prices and enlarged production before long. Furnace coke is still quoted at $2 and foundry coke at $2.25@$2.50. The production last week was 149,872 tons, as compared with 154,748 tons the previous week. Of the 20,538 ovens in the region 14,017 are active and 6,521 are idle. The shipments aggregated 7,577 cars, distributed as follows: To Pittsburg, 2,752 cars; to points west of Pittsburg, 3,593 cars; to points east of Connellsville, 1,232 cars. This was a decrease of 21 cars, compared with the shipments of the previous week.

Foreign Coal Markets.

The Gauley Mountain Coal Company, of Ansted, W. Va., is now shipping on an order for 1,000 tons of coke to go to Marseilles, France. This is the first export order received by the company.

Some coal charters recently reported are at the following rates: Newport News to Marseilles, $5.16; to Naples or Genoa, $5.13@$5.16; to Valencia, Spain, $5.28; to Barcelona, $5.14 per ton. Tonnage is still scarce.

The English coal trade is steadier, and less is heard of apprehended scarcity. There is no change in prices. Welsh steam coal on dock at shipping port is quoted at $7.20 for lump, down to $5.04 for steam coal. Good average bunker coal for steamers is $6 per long ton on wharf. In Northern ports the quotation for Northumbrian steam coal is $5.28@$5.76, f. o. b. Tyne port.

Bunker coal ranges about the highest price. Freights from Cardiff to Marseilles are still high, $2.45@$2.50 per ton being quoted.

In France there is little change. Current quotations in the Nord and the Pas-de-Calais are for lump, steam coal, $6.80 per metric ton; nut, $6.50; washed, $7; run-of-mine, $4.60. Lower class coal can be had for $4. To these prices from $1 to $1.50 must be added for freight to Channel ports, and from $2 to $2.75 to Mediterranean ports. In the Southern ports the consumption is chiefly of English coal.

In Germany the trade is in rather an excited condition, and complaints of short supplies continue. The large syndicates regulate shipments by their own convenience, and not by consumers' needs. Appeals have been made to the Government, but the only remedy so far is a slight reduction in rates on the railroads.

SLATE TRADE REVIEW.

New York. Sept. 28.

The list of prices per square for No. 1 slate standard brand f. o. b. at quarries in car-load lots, is given below:

Size, inches	Monson or Br'nville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Chap'n Keys'ne.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
24 x 14	6.50	3.50	3.00	3.00	..	5.10	2.90	..	.....
24 x 12	6.60	3.50	3.00	3.00	3.80	5.25	2.90	3.75	.....
22 x 12	6 60	3.50	3.25	3.00	... .	5.25	2.90	3.75	.....
22 x 11	6.50	3.75	3.25	3.00	4.00	5.25	2.90	4.00	.....
20 x 12	6 90	3.75	.....	3 00	.....	5.25	2.90	3.75	.....
20 x 11	6.80	.....	.....	3.25	..	5.25	2.90	.....	.....
20 x 10	6.80	4.25	3.50	3.25	4.00	5.35	2.90	4.25	10.50
18 x 12	6.80	3.75	.....	3.00	.....	5.25	2.90	3.50	.....
18 x 11	7.00	.....	.....	.....	.....	.....	2.90	3.75	.....
18 x 10	7.00	4.25	3.50	3.25	4.00	5.35	2 90	4.00	10.50
18 x 9	7.00	4.50	3.50	3.25	4.00	5.35	2.90	4.25	10.50
16 x 12	6.80	3.75	.....	3.00	.....	.....	2.85	3.50	.....
16 x 10	7.00	4.25	3.50	3.25	4.00	5 25	2.85	4.00	10.50
16 x 9	7.00	4.25	.....	3.25	4 00	5.35	2.85	4.25	10.50
16 x 8	7.00	4.50	3.50	3.25	4.25	5.35	2.85	4.25	10.50
14 x 10	6 60	3.75	3.25	3.00	.....	5 25	2.70	3.75	10.50
14 x 9	6 50	.....	.....	.....	.....	.....	2.70	3.75	10.50
14 x 8	6 60	3.75	3.25	3.00	4.00	5.10	2.70	4.25	10.50
14 x 7	6.40	3.75	3.25	3 00	3.75	5.10	2.50	4.25	10.50
12 x 10	5.75	.....	.. .	.....	... .	...	2.50	3.25	....
12 x 9	5.60	.....	.....	.....	.....	.....	2.50	3.25	.....
12 x 8	5.50	3.50	.....	2.85	.....	4 85	2.50	3.50	9.00
12 x 7	5.00	3.25	.....	2.85	3 25	4.85	2.25	3.50	9 00
12 x 6	4.80	3.25	.....	2.85	3.25	4.75	2.25	3.50	8.50

A square of slate is 100 sq. ft. as laid on the roof.

Roofing slate business is dull. Production is not large, and stocks to-day are considerably less than at this time in years past. In fact, outside of the Lehigh region there are practically no unsold stocks of any desirable sizes of roofing slate. Prices nevertheless are unsettled. A red slate combination is talked of, but as the production is so small there is no doubt that this trade can be controlled advantageously.

The shipments of slate from Slatington and Walnutport, Pa., in the week ending September 20th, were 3,577 squares roofing; 398 cases school slates, and 962 crates blackboards. So far this year the shipments aggregate 139,537 squares roofing slate; 15,951 cases school slates, and 14,477 crates blackboards.

In export circles moderate-sized orders are reported, but shipments are interfered with by the continued high freight rates. The slate industry of the United Kingdom in 1899 is summarized as follows: Production, 639,840 long tons, as against 668,859 tons in 1898; exports, £186,921 ($934,605), against £187,781 ($938,905); imports, £338,144 ($1,690,720), against £329,201 ($1,646,005) in 1898. Of the exports in 1899, Germany received the largest amount—£127,570 ($637,850). Of the imports, £253,976 ($1,269,880) came from the United States, as against £267,479 ($1 337,395) in 1898; showing a falling off in 1899 of $67,515.

IRON MARKET REVIEW.

New York, Sept. 28, 1900.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Sept. 29, 1899. F'ces.	Tons.	Week ending Sept. 28, 1900. F'ces.	Tons.	From Jan., '99. Tons.	From Jan., '00. Tons.
An' racite & Coke.	233	266,300	197	225,425	9,571,417	11,379,898
Charcoal.	24	5,750	31	8,225	201,812	302,267
Totals..	257	272,050	228	233,650	9,773,229	11,682,165

The iron trade generally is improving and demand is becoming larger. It is evident, as we have always said, that there is a large business to be done as soon as people are convinced that bottom prices, or somewhere near them, have been reached.

In raw material Bessemer pig is selling better, and the demand for foundry iron is fair. Steel billets are also in considerable demand, and sales are improving.

Finished material also shows a fair demand, especially for bars and merchant iron and steel. Structural material is not so active. The settlement of the dispute between the companies and the Amalgamated Association has had a favorable influence on the market. The particulars will be found in our Pittsburg letter below.

The steel rail market last week decided to put the price of standard sections from $35 down to $26 a ton. This satisfies nobody, and the railroads have not begun to buy as expected. The railroad people say, and with justice, that the difference between billets and rails is still too great, and it looks as if they will not place any large tonnage at $26. However, it is quite probable that this price is only given out as a feeler, and that another reduction may follow.

Birmingham, Ala. Sept. 24.

(From Our Special Correspondent.)

Pig iron market conditions in this district are not prosperous. The markets are very quiet; all shipments now are on orders accepted some months since. The fact that the railroads in the Southern territory have granted a reduction, effective October 1st, on all furnace products shipped to points above the Ohio River, gives the furnacemen but little encouragement, for it was expected that a reduction would also be given on export traffic.

Trussville Furnace may be put back in operation in a few weeks, there being a well-defined rumor out that the furnace has been re-leased by Mr. C. E. Buck, of Chattanooga, and will be refitted and put in blast. The larger companies in this district are not contemplating putting any furnaces in blast. There is still an accumulation of iron and the yards show plainly that more iron is being produced than is being shipped.

The local consumption is still steady, though not as great as it has been at times. The various smaller industries in the district are still running on only fairly good time. The plow factory at Ensley, the Austin-Bryan Manufacturing Company's plant, is in blast and it is intended to increase the capacity from time to time. At present not a large quantity of material is used there. The Dimmick pipe plant at North Birmingham is increasing its capacity right along and the plant promises to become quite an important one ere long. The Dimmick Company secured the contract for the pipe to be used by the Irondale Water and Electric Company, which will supply water to a number of the suburbs around Birmingham. This contract was no small one. The plants of the United States Cast Iron Pipe and Foundry Company at Anniston and Bessemer are working on an extensive order for the gas company in Copenhagen. This order was begun on some weeks since and the Denmark shipments have been noticed throughout the country.

The following quotations are given: No. 1 foundry, $11.50@$12; No. 2, $11@$11.50; No. 3, $10.50@$11; No. 4, $10@$10.50; gray forge, $9.50@$10; No. 1 soft, $11.50@$12; No. 2, $11@$11.50.

Buffalo. Sept. 26.

(Special Report of Rogers, Brown & Co.)

The market is jogging along at a quiet, unobtrusive pace, giving an impression of slow business and yet a review of results at the end of each week shows a volume of tonnage, made up of small lots, which is quite respectable for ordinary times. In making comparisons our views are apt to be distorted by the abnormally brisk period which we have recently passed through. It cannot be called a strong market, as there are some weak sellers in the field, but the market has its limits, as has been demonstrated during the past week, during which a larger tonnage of offers has been refused by sellers than of orders entered during the corresponding period. Prices have been at a point recently where there is practically no margin for the producers, whose cost of manufacture cannot materially change for a period of months to come. Charcoal iron, under the influence of small supply, has materially stiffened. We quote below on the cash basis f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $16.50; No. 2, $16; Southern soft, No. 1, $16.50; No. 2, $16; Lake Superior charcoal, $19; coke malleable, $15.50.

Cleveland, O. Sept. 26.

(From Our Special Correspondent.)

Iron Ore.—The shippers of iron ore down the lakes are now preparing to wind up their season by getting all of the wild stuff out of their way, leaving the movement entirely to the contract vessels. It is expected that the wild ore will all be down the lakes before the middle of October and that the last contract cargo will be carried about November 1st, after which the boats will have to find occupation in other directions, as no repetition of last year's rush of ore is expected. This week there have been a few more wild cargoes than ordinary brought down, but this was because some of the contract owners were farming out their contract stuff and sending their boats after grain. This had no other effect, however, than that of permanently lowering the wild rates from 70c. to 65c. from the head of the lakes. So few wild cargoes are taken at Escanaba and Marquette that a rate is not possible there. Some discussion has been indulged in of late as to the possible prices of ore for next year. It is believed that Old-range Bessemer ore will bring not more than $4, a drop of $1.50, and that non-Bessemer will be on a similar basis. This is largely speculation and some of the shippers refuse to believe that any such prices will prevail. There are few, if any, sales now being made, but on these the basing prices are unchanged, the Old-range ores bringing $5.50 on Bessemer and $4.15 on non-Bessemer, and on the Mesabi ores $4.25 on Biwabik and $4.85 on Adams.

Pig Iron.—The prices vary widely on pig iron and especially on the foundry grades. There is so little being done with Bessemer iron that no very great variation is possible. Upon sales for spot delivery quotations on No. 1 and No. 2 foundry are all the way from $14 to $15.50, but the market would be best represented by a quotation of $15@$15.50 on No. 1 and $14.50@$15 on No. 2. The sales are heavier than they have been, but are by no means great as yet. The prospects for better business after election are bright. A few sales are being made to cover the first three months of next year.

Finished Material.—Plates have grown weaker during the week. Those mills which have their capacity pretty well covered are holding out for the prices of a week ago, 1.20c. or better, but the others are willing to do business on a basis of 1.10c., holding nominally for 1.15c., but giving way with the least persuasion. It is also believed that the standard mills, rather than see any big business go by, would cut the prices down to the level of their competitors. There is a large demand for bars, and heavy sales have been made this week. The prices are stiff, the mills holding out firmly for 1.15c. or better, that being the rock bottom price. There is a good business in shapes, beams and channels, holding up the association prices of 1.50, and angles going at 1.40, as they have done.

Philadelphia, Pa. Sept. 27.

(From Our Special Correspondent.)

Pig Iron.—The anthracite coal strike threatens to create some unfavorable conditions in the Eastern iron trade. Troubles are threatening from the bituminous coal fields should heavy shipments be made East. Furnace managers visiting here this week express apprehensions over their ability to keep going very long, as in very few cases are there large supplies of fuel on hand. The transactions reported in our leading offices since Monday denote a larger volume of business. There is no change in quotations and no anxiety to force sales.

Billets.—It is imposible to find out what course billet manufacturers propose to take in view of the new steel rail prices. The necessities of Eastern consumers have obliged them to contract for supplies which it is said have been made on a basis of $17.50, though there is a rumor that a reduction is coming.

Bar Iron.—Bar iron threatens to go a tenth higher in small lots, though up to to-day there has been no advance. Some contracting has been secretly done which lessens the struggle of Eastern mills for business. The adjustment of puddlers' wages West is likely to start a row-of-bricks falling in Eastern mill wages.

Merchant Steel.—Prices are harder this week on a few lines, owing to some heavy orders having been placed in the West. Besides, buyers of merchant steel all over the East are using more of it. Agents do not guarantee prices for any given time.

Plates.—There are rumors to-day of a possible reduction, but the demand for plates has been close enough to capacity to prevent a concession on any early deliveries. Sales are made at 1.35c. for ¼-in.

Structural Material.—There are some grounds for saying that structural material may weaken in the opinion of outsiders, but the officials say there is nothing of the kind in sight. The demand appears as heavy as ever and there is no change in prices.

Steel Rails.—The undecisive way in which rails were reduced to $26 leaves doubts in the minds of some people as to the exact situation. Inquiries here show that the big rush of orders has not set in.

Old Rails.—The agents who handle old rails report to-day the sale of small lots, mostly iron.

Scrap.—There is a movement for scrap in large quantities and scrap dealers are now on the road trying to fill orders they have just received. The quotations on wrought turnings are shaded, but on heavy steel and railroad scrap higher figures are asked.

Pittsburg. Sept. 26.

(From Our Special Correspondent.)

It is reliably stated here that $14 is the lowest price Bessemer pig iron delivered in Pittsburg

has reached or will be reached this year. There is a report that some sales were made as low as $13.75, but it is not credited. Foundry iron is a trifle firmer, but prices are unchanged. No furnaces were blown in this week and none went out of blast. These were no sales of Bessemer steel billets, and while the price quoted is $17, it is believed that a lower price would be accepted. There is a better demand for steel bars and prices are firmer, but plates are weaker. The demand for all kinds of finished material is strong and present indications point to a revival in the iron and steel markets before long.

The iron wage scale was settled after a four days' and an all-night conference at Cincinnati last Sunday morning. The representatives of the Republic Iron and Steel Company and the American Steel Hoop Company persisted in their demand for a reduction, while the committee of the Amalgamated Association was equally firm for the latest demand made, which was last year's scale in its entirety. A compromise was finally effected. Instead of a $5 a ton puddling base at 1.4c. bar iron selling price, the demand of the workers, the price was fixed at $4.75 a ton, with bar iron selling at 1c., but the actual base is 1.2c. The scale as agreed upon is as follows: When the bar iron sales for 60 days average 1c. the rate for puddling is $4.75; 1.1c., $4.75; 1.2c., $4.75; 1.3c., $4.87½; 1.4c., $5; 1.5c., $5.25; 1.6c., $5.50; 1.7c., $5.62½; 1.8c., $5.75; 1.9c.; $5.87½; 2c., $6. The rate for finishing advances 2% with each 0.1c. advance in bar iron prices above the base of the scale. The manufacturers agreed to pay the $5 rate for puddling for the months of September and October and determine the rate for November and December under the new scale by the sales of bar iron made during this and next month. The idleness of the combinations' bar mills since June 30th has resulted in a stiffening of prices and it is believed the sales will justify a continuance of the $5 puddling rate the balance of the year. The new scale is not as unfavorable to the workers as some are inclined to believe. The puddling base is 5% lower than last year and for the finishers it is 8% lower. Compared with the scale that expired on June 30th, 1899, the new base of the puddlers' scale is 20% higher and that of the finishers 15%. All the plants of the Republic Iron and Steel Company and the union mills of the American Steel Hoop Company were put in operation Tuesday and yesterday. The independent concerns which signed the original scale of the Amalgamated Association and have been in operation for two months have taken considerable business from the Republic and Hoop companies. A number of the American Tin Plate Company's plants have been put in operation and more will be started as soon as the wage scale for the tin-house-men is settled, which may be some time this week.

Pig Iron.—A number of sales of Bessemer pig iron in lots ranging from 200 to 700 tons, aggregating about 3,000 tons, were made this week for spot delivery at $14, Pittsburg. The demand for foundry iron is good and prices are firm, but there is no change in the quotations this week.

Steel.—There is nothing doing in Bessemer steel billets, no sales having been recorded for over a week. The price quoted is $17, but this might be shaded. Steel bars are in good demand and the price this week is firmer and higher, the quotations being 1.15@1.25c. Plates are lower, some sales having been made at 1.05c.

Sheets.—The demand is good, but it is difficult to give anything like accurate prices on sheets. No. 28 has sold during the week at 3@3.05c. and No. 27 at 2.90@2.95c.

Ferro-manganese.—There is no change in price, 80% domestic still being quoted at $85.

New York. Sept. 28.

The local iron market is likely to be quiet until after election day. In foreign trade high ocean freight are interfering with business. We note shipments of structural material to Scotland, France and Sweden; also shipments of $27,000 of agricultural machinery, $14,000 worth of mining machinery and $18,000 worth of manufactured iron to Chile.

Pig Iron.—The market is rather lifeless. We quote for Northern irons, tidewater delivery: No. 1 X foundry, $16@$17; No. 2 X, $15.50@$16; No. 1 plain, $16@$17; No. 2 plain, $14.75@$15.50; gray forge, $14.50@$15. For Southern irons on dock, New York, No. 1 foundry, $16.25@$16.75; No. 2, $15@$15.75; No. 3, $14.50@$15; No. 4, $13.75@$14.50; No. 1 soft, $16.25@$16.75; No. 2, $15@$15.75.

Bar Iron and Steel.—The market continues featureless. We quote common bars at 1.20@1.25c. for large lots on dock; refined bars, 1.35c.; soft steel bars, 1.20c.

Plates.—The market continues fairly firm. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 1.25@1.35c.; tank, 3/16-in., 1.30@1.40c.; shell, 1.35@1.45c.; flange, 1.60c.; marine, 2.10c.; universals, 1.30c.

Steel Rails and Rail Fastenings.—The only result of the recent conference thus far seems to be the publication of numerous opinions that $26 for next year is too high. Prices are nominally somewhere around $30 at Eastern mills. Small rails are quoted somewhere near the same figures, though there are reports of sales at $25. Splice bars are 1.40@1.50c.; spikes, 1.70c.; fish plates, 1.35c.; bolts, 2.30@2.40c.

Structural Materials.—The demand is rather light and very few large contracts of any size are reported. We quote large lots at tidewater: Beams, 1.65c.; channels, 1.65c.; angles, 1.30c.; tees, 1.70c.; zees, 1.65c.

Nails.—Demand continues small. Wire nails in large lots on dock are quoted at $2.50; cut nails, $2.15.

METAL MARKET.

New York. Sept. 28.

Gold and Silver.

Gold and Silver Exports and Imports

At all United States ports in August and year.

Metal.	August.		Year.	
	1899.	1900.	1899.	1900.
GOLD.				
Exports	$2,099,062	$18,066,372	$32,258,843	$51,779,783
Imports	5,391,411	3,099,857	31,674,527	30,989,056
Excess	I. $3,292,349	E.$14,966,515	E. $584,316	E.$20,790,727
SILVER.				
Exports	3,992,970	6,486 899	35,116,390	41,770,043
Imports	3,178,738	4,214,573	20,347,249	26,374,694
Excess	E. $814,232	E. $2,272,326	E.$14,769,141	E.$15,395,349

This statement includes the imports and exports at all United States ports, the figures being furnished by the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending September 27th, 1900, and for years from January 1st, 1900, 1899, 1898, 1897.

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$31,122	$8,645	$800,465	$76,866	E. $746,076
1900..	36,448,589	1,788,283	29,067,516	3,677,582	E. 60,050,240
1899..	11,554,661	9,198,749	20,461,086	2,677,785	E. 20,139,213
1898..	6,916,405	84,946,426	25,633,472	2,334,306	I. 51,681,455
1897..	28,112,486	4,323,162	30,193,989	1,711,264	E. 52,272,049

Exports of gold were in small lots to various ports; imports were from the West Indies. The silver exported went chiefly to London; that imported came from Mexico and the West Indies.

The United States Assay Office in New York reports the total receipts of silver at 140,000 oz. for the week. Total since January 1st, 3,717,000 oz.

Average Prices of Silver per oz. Troy.

Month.	1900.		1899.		1898.	
	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.
January...	27.30	59.30	27.42	59.36	26.29	56.77
February..	27.49	59 76	27.44	59.42	25.89	56.07
March.....	27.59	59.81	27.48	59.64	25.47	54.90
April.....	27.41	59.59	27.65	60.10	25.95	55.02
May.....	27.56	59.96	28.15	61.23	26.31	56.98
June.....	27.81	60.42	27 77	60.43	27.09	58.61
July.....	28.23	61.25	27.71	60 26	27.32	59.06
August....	28.13	61.14	27.62	60.00	27 48	59.54
September	.....	.....	27.15	58.89	28.05	60.68
October ..	.....	.....	26.70	57.98	27.90	60.42
November	.....	.....	27 02	58.67	27.93	60.60
December.	....	.....	27.21	58-99	27.45	59.42
Year....	.....	.....	27.44	59.58	2.76	58.20

The New York prices are per fine ounce; the London quotation is per standard ounce, 925 fine.

Average Prices of Metals per lb., New York

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899
Jan	15.58	14.26	27.07	22.48	4.68	4.18	4 65	5.34
Feb.....	15.78	17.02	30.58	24 20	4.675	4.49	4.64	6.28
March...	16,29	16.35	32.90	23.82	4.675	4.37	4.60	6.31
April...	16.76	17.13	30.90	24.98	4.675	4.31	4.71	6.67
May	16.34	17.20	29.37	25.76	4.181	4.44	4.53	6.88
June....	15.75	16.89	30 50	25 85	3.901	4.43	4.29	5 98
July ..	15.97	17.10	33.10	29.63	4.030	4.52	4.28	5.82
Aug....	16.35	17.42	31.28	31.53	4.250	4.57	4.17	5.65
Sept....	.....	17.34	.....	32 74	.....	4.58	.....	5.50
October..	.....	16.94	.....	31.99	.....	4.575	.....	5.32
Nov....	.....	16.49	.....	28.51	.....	4.575	.....	4.64
Dec	.....	15.85	.....	25.88	.....	4.64	.....	4.66
Year....	....	16.67		25.12	.....	4.47	.....	5.75

Commencing with March 17th, the prices given in the table for copper are the averages for electrolytic copper; this is the case for both 1899 and 1900. The average price for Lake copper for the year 1899 was 17.61c. For January, 1900, the average price of Lake copper was 163c.; for February, 16.08c.; for March, 16.55c.; for April 3.94c.; 61. for May, 16 55c.; for June, 16c.; for July, 16.16c.; for August, 16.38c.

Prices of Foreign Coins.

	Bid.	Asked.
Mexican dollars.....	$ 49¼	$ .50⅛
Peruvian soles and Chilean pesos ..	.45	.46½
Victoria sovereigns.....	4.85	4.88
Twenty francs	3.85	3.88
Twenty marks.....	4.74	4.80
Spanish 25 pesetas.....	4 78	4.82

Financial Notes of the Week.

Business continues quiet and the speculative markets rather weak. Though there is little excitement about the election, most people prefer to wait until it is over before undertaking anything new. Money in New York is higher, and the demand for currency to move the crops is becoming strong.

Silver has been in demand, and supplies are

Imports and Exports of Metals.

Port.		Week, Sept. 26.		Year 1900.	
		Expts.	Impts.	Expts.	Impts.
‘New York.					
Aluminum.....long tons		2	**2	111	75
Antimony ore... " "		.....	**70	.....	2,167
" regulus.. " "		.....	.....	.....	895
Chrome ore..... " "		.....	.....	.....	1,501
Copper, fine ..... " "		2,051	257	79,953	15,431
" matte.. " "		74	.....	3,421	202
" ore. .... " "		.....	5,436	.....	41,378
" ash..... " "		.....	.....	.....	93
Ferro-Chrome .. " "		.....	.....	.....	31
Ferro-mangan'se " "		.....	**94	.....	626
Iron ore. .. " "		.....	.....	.....	17,526
" pig, bar, rod " "		128	.....	11,897	5,823
" pipe..... " "		341	.....	11,081	157
" plates, sheets " "		.....	.....	889	18
Lead. ..... " "		1,550	1,350	57,334	51,639
" ore.. ..... " "		.....	.....	.....	9,700
" dross ..... " "		.....	.....	.....	24
Manganese, ore. " "		.....	.....	.....	9,361
Metals, old, scrap " "		149	**136	3,058	5,905
Composition... " "		276	.....	1,912	185
Nails. ..... " "		356	.....	16,345	.....
Nickel .. " "		67	.....	1,786	168
" ore, matte " "		.....	.....	.....	5,393
§Railr'd material " "		55	**85	4,296	3,338
Rails, old..... " "		36	.....	4,903	518
Spiegeleisen..... " "		.....	**39	.....	3,347
Steel bars, plates " "		2,707	**400	28,285	13,906
" rails..... " "		439	.....	41,053	18
" wire..... " "		674	.....	20,478	23
" not speci'd. " "		1,278	**51	9,205	2,250
Tin ..... " "		....	1,000	5	19,931
" and black plates" "		.....	§513	.....	28,728
Zinc..... " "		....	**2	625	381
" dross..... " "		.....	.....	641	50
" ashes, skim " "		22	.....	960	20
" ore..... " "		.....	.....	11,658	.....
†Baltimore.					
Chrome ore.....long tons		.....	.....	.....	3,730
Copper, fine..... " "		.....	.....	28,834	3,400
" matte... " "		.....	.....	.....	.....
Ferro-manganese " "		.....	.....	.....	155
Iron pig, bar. etc. " "		.....	650	4,274	22,124
" ore..... " "		.....	4,360	.....	318,306
" pyrites..... " "		.....	.....	.....	25.584
Manganese ore.. " "		.....	10,850	.....	117,175
Metals, old & Rails" "		.....	.....	568	2
Nails ..... " "		.....	.....	1,250	.....
Pipe, iron & steel " "		.....	.....	5,083	.....
Silicon ... " "		.....	.....	.....	85
Spiegeleisen..... " "		....	.....	.....	778
Steel, bars, etc.. " "		.....	.....	31,672	3,471
" wire .... " "		.....	7	826	114
" rails..... " "		.....	.....	64,971	.....
Tin..... " "		.....	.....	.....	251
" and blackplates" "		.....	15	.....	2,348
‖Philadelphia.					
Antimony ...long tons		.....	.....	.....	14
Chrome ore... ... " "		....	.....	.....	3,650
Copper, fine..... " "		.....	.....	3,224	.....
" ore..... " "		.....	.....	.....	31,095
Iron, pig..... " "		.....	220	1,355	3,630
" ore..... " "		....	12,400	.....	212,100
" pyrites..... " "		.....	.....	.....	87,455
Manganese ore.. " "		.....	.....	.....	76,900
Spiegeleisen..... " "		....	.....	.....	4,153
Tin ..... " "		.....	50	.....	538
" and black plates" "		.....	.....	.....	1,634
Zinc..... " "		.....	.....	67	.....
" ore..... " "		.....	.....	4,307	.....

Total United States.§§

Articles.		July, 1900.		Year, 1900.	
		Expts.	Impts.	Expts.	Impts.
Antimony.. ... long tons		...	75	.....	858
" ore.... " "		.....	52	.....	1,650
Copper, fine, in all forms " "		‡11,636	§87,742	101,865	33,432
Iron, pig & bar.. " "		15,892	21,819	94,047	66,787
" ore..... " "		6,791	65,865	10,423	550,852
Iron & steel plates " "		1,580	118	23,553	4,529
Iron & steel rails " "		40,278	21	227,258	988
" " wire " "		5,489	204	50,457	1,086
Lead, in all forms " "		7,909	8,939	51,041	55,009
Manganese ore and oxide..... " "		.....	38,033	.....	241,555
Nickel "&matte " "		239	.....	1,488	.....
Nails, cut..... " "		1,009	.....	7,071	.....
" wire .... " "		2,137	.....	19,971	.....
Quicksilver.... " "		16	.....	226	.....
Steel, billets, rods, etc..... " "		9,169	2,770	48,600	21,285
Tin ..... " "		90	1,758	322	18,379
" &black plates " "		6	6,311	401	39,155
Zinc ..... " "		657	59	14,534	610
" ore ..... " "		4,058	.....	23,237	.....

‘New York Metal Exchange returns. ‘By our Special Correspondent. § Not specified. §§ Monthly returns, Treasury Department. ‡ Report of Mr. John Stanton. ‖ Week, September 18th. ** Week, September 21st. Exports include domestic and foreign metals.

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2½c per lb. on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c per lb. Spelter or zinc, 1½c per lb. on pigs and bars 2c. on sheets etc. Copper, tin and platinum are free of duty.

readily absorbed. Inquiry in London has been from either the home or colonial mints. These special purchases, in connection with regular orders, have given the market a firm tone.

The statement of the United States Treasury on Wednesday, September 26th, shows balances in excess of outstanding certificates as below, comparison being made with the statement of the corresponding day last week:

	Sept. 19.	Sept. 26.	Changes.
Gold	$75,495,574	$78,932,253	I. $3,436,716
Silver	9,492,289	8,599,420	D. 895,969
Legal tenders	24,224,384	21,944,130	D. 2,280,254
Treas notes, etc	438,934	124,129	D. 314,814
Totals	$109,651,181	$109,596,963	D $542,218

Treasury deposits with national banks amounted to $97,272,907, showing an increase of $453,242 for the week.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending September 22d gives the following totals, comparison being made with the corresponding weeks in 1899 and 1898:

	1898.	1899.	1900.
Loans and discounts	$642,162,300	$721,925,400	$823,141,000
Deposits	700,753,300	798,590,400	897,471,500
Circulation	14,974,000	14,911 600	29,662,400
Reserve:			
Specie	129,646,600	154,754,200	173,798,800
Legal tenders	53,794,600	47,857,100	67,121,400
Total reserve	$183,441,200	$202,611,300	$240,920,2 0
Legal requirements	175,188,250	198,647,600	224,367,875
Balance, surplus	$8,252,950	$2,963,700	$16,552,325

Changes for the week, this year, were an increase of $184,000 in circulation; decreases of $1,689,600 in loans and discounts, $9,873,400 in deposits, $2,802,000 in specie, $3,950,200 in legal tenders, and $4,283,850 in surplus reserve.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding date last year:

	1899.		1900.	
Banks.	Gold.	Silver.	Gold.	Silver.
N.Y. Ass'd	$154,754,200	.....	$173,798,800	.....
England	178,572,030	....	183,307,470	.....
France	384,686,155	$238,207,135	452,774,700	$225,974,830
Germany	132,310,000	68,155,000	139,345,000	71,780,000
Spain	66,120,000	68,405,000	68,445,000	84,170,000
Aus.-Hun	150,120,000	52,835,000	189,785,000	49 020,000
Neth'l'ds	13,710,000	29,815,000	22,845.000	28,175,000
Belgium	14,730.000	7,365,000	14,010,000	7,005,000
Italy	77,750,000	7,160,000	76,955,000	8,345,00
Russia	458,560,000	25,730,000	383,015,000	36,335,000

The returns of the Associated Banks of New York are of date September 22d, and the others are of date September 21st, as reported by the Commercial and Financial Chronicle cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the year up to September 13th, 1900, are reported by Messrs. Pixley & Abell's circular as follows:

	1899.	1900.	Changes.
India	£3,545,200	£4,028,907	I. £483,707
China	948,953	1,596,866	I. 647,913
The Straits	204,008	574,566	I. 371,558
Totals	£4,697,161	£6,200,339	I. £1,503,178

Arrivals for the week, this year, were £181,000 in bar silver from New York and £11,000 from Australia; total, £192,000. Shipments were £197,500 in bar silver to Bombay and £133,108 to China; total, £330,608.

Indian exchange is steady at about 15.94d. per rupee, but a better demand for Council bills is reported in London.

The foreign merchandise trade of Great Britain for the eight months ending August 31st is given by the Board of Trade returns as below:

	1899.	1900.
Imports	£317,327,164	£337,967,068
Exports	215,979,128	237,524,658
Excess, imports	£101,348,036	£100,442,410

The imports show an increase of £20,639,904, or 6.5%, and the exports an increase of £21,545,530, or 9.9%; leaving a decrease of £903,626, or 0.9%, in the excess of imports. The gold and silver movement for the eight months was as follows:

Gold:	Imports.	Exports		Excess.
1900	£19,010,335	£9 166,479	Imp.	£9,843,886
1899	23,754.715	13,018,315	Imp.	10,706,410
Silver.				
1900	8,334.695	8,544,420	Exp	209,725
1899	8,993,390	9.786,741	Exp.	793,351

Of the silver imported this year £7,160.661, or 85.9% of the total, was from the United States. This compares with £5,937,886, or 66.0%, last year.

Other Metals.

Daily Prices of Metals in New York.

September.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London. Pence.	Copper. Lake. cts. ₱ lb.	Copper. Electrolytic ₱ lb.	Copper. London £ ₱ ton.	Tin. cts ₱ lb.	Lead cts. ₱ lb.	Spelter. N. Y. cts. ₱ lb.	Spelter. St. L. cts. ₱ lb.
22	4.86¾	62⅞	28⅞	16⅝ @16¾	16⅜ @16½	....	27¾	4 32½ @4.37½	4.10	3.95
24	4.86¾	62⅞	28⅛	16⅝ @16¾	16⅜ @16½	73	28¼	4.32½ @4.37½	4.10	3 95
25	4.86½	62⅝	28⅞	16⅝ @16¾	16⅜ @16½	73	28½	4.32½ @4.37½	4.10 @4.15	3.95 @4 00
26	4.86¼	62⅞	29	16⅝ @16¾	16⅜ @16½	72⅞	28¾	4.32½ @4.37½	4.10 @4.15	3.95 @4.00
27	4.86¼	63⅛	29¼	16⅝ @16¾	16⅜ @16½	72¾	28¾	4.32⅛ @4.37½	4 10 @4.15	3.95 @4.00
28	4.85¾	63¼	29⅜	16⅝ @16¾	16⅜ @16½	72⅞	28½	4.32½ @4.37½	4.10 @4.15	3.95 @4.00

London quotations are per long ton (2,240 lbs.) standard copper, which is now the equivalent of the former g. m. b's. The New York quotations for electrolytic copper are for cakes, ingots or wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures

Copper.—The market has been quiet but steady. While the metal has been offered somewhat more freely for future delivery, a careful canvass of the market reveals the fact that very little can be bought for the next two months, producers being well sold up and behind with their deliveries.

We quote lake copper 16⅝@16¾c.; electrolytic in cakes, bars or ingots, 16¾@16½c.; cathodes, 16⅛@16¼c.; casting copper, 16⅜c.

The market for standard copper in London has moved within very narrow limits. It opened on Monday at £73 and remained at that figure for the main part of the week. The closing quotations are cables as £72 10s.@£72 12s. 6d. for spot and £73 7s. 6d.@£73 10s. for three months prompt. The article is again beginning to attract the attention of speculators in London.

Good business is reported in sulphate of copper.

For refined and manufactured sorts we quote: English tough, £76 10s.@£77 10s.; best selected, £78 15s.@£79 5s.; strong sheets, £84@£85; India sheets, £83; yellow metal, 6⅞d.

Imports of copper into Great Britain for the eight months ending August 31st were as follows, in long tons:

	1899.	1900.
Copper ore	65.740	76,015
Matte and precipitate	52,737	55,551
Fine copper	41,010	50,425

The total this year was equivalent to 85,803 long tons of fine copper, against 73,953 tons in 1899; an increase of 11,850 tons, or 16%. Of the imports this year 1,046 tons ore, 5,327 tons matte and 20,790 tons fine copper were from the United States.

Tin.—After the heavy decline of last week a reaction has set in, but transactions have been rather limited, consumers not responding readily to the upward movement. Owing to large arrivals, the premium for spot has been considerably reduced. We quote Straits prompt at 28½c. and October at 28¼@28⅜c.

In London, the opening quotation on Monday did not show any change from that of last Friday, £125 10s., but on Tuesday prices advanced £4 and on Wednesday another £3. Since then it has ruled steady and the closing quotations are cabled as £130 15s.@£130 17s. 6d. for spot, £126 10s.@£126 12s. 6d. for three months.

Imports of tin into Great Britain for the eight months ending August 31st were: Straits, 14,292 long tons; Australasia, 1,860 tons; other countries, 3,630 tons; total, 19,782 long tons, against 17,118 tons last year. Exports of tin were 12,732 tons, against 12,450 tons last year. There were 7,050 tons consumed or added to stocks this year.

Lead is quiet and unchanged and nothing of interest has transpired. We quote New York 4.32½@4.37½c. and St. Louis 4.27½@4.32½c.

The European market continues very firm and a good consumptive demand is reported. Spanish lead is quoted £17 15s.@£17 17s. 6d., and English lead £17 17s. 6d.@£18.

Imports of lead into Great Britain for the eight months ending August 31st were, in long tons:

From	1899.	1900
Spain	67,031	58,149
Australasia	41,833	34,672
United States	21,709	25,498
Other countries	7,197	10,360
Total	137,770	128,679

The decrease this year was 9,091 tons, or 6.6%. Most of the lead credited to the United States is Mexican lead refined here in bond.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is dull and uninteresting. The price of desilverized lead continues 4.32½c., but Missouri brands can be had about $1 per ton below this price and some sales of both chemical and soft Missouri lead are being made quietly at 4.27½c. Nobody anticipates any special change in the near future.

Spelter is in good demand, both here and abroad, and prices have stiffened somewhat. We quote New York 4.10@4.15c. and St. Louis 3.95@4c.

The foreign market is firm, good ordinaries being quoted at £19 2s. 6d. and specials at £19 5s.

Imports of spelter or metallic zinc into Great Britain for the eight months ending August 31st were 48,189 long tons, against 47,028 tons in 1899, showing an increase of 1,161 tons, or 2.5%, this year.

Antimony.—No change. We quote Cookson's, 10c.; Hallett's, 9¼c.; U. S. Star, 9¼c.

Nickel.—The price continues firm at 50@60c. per lb., according to size and terms of order.

Platinum.—Consumption continues good and prices are strong. For ingot platinum in large quantities $18.20 per Troy oz. is quoted in New York.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 72c. per gram, showing an increase of 1½c.

Quicksilver.—The New York quotation continues unchanged at $51 per flask for large lots, with $52.50@$54 asked for small quantities. San Francisco prices are firm, $49@$50 being named on local deliveries, and $44.50@$45 on export orders. The London price is £9 2s. 6d. per flask, with the same price named from second hands.

Quicksilver receipts at San Francisco in August were light, only 1,330 flasks being reported. For the eight months ending August 31st the receipts were 13,905 flasks, against 15,232 in 1899. These receipts do not include shipments made direct from the mines to consumers. The shipments by water from San Francisco for the eight months were: Siberia, 7 flasks; China, 1,000; Austrialia, 100; Central America, 1,114; Mexico, 3,046; British Columbia, 11; Washington, 5; New York, 20; total, 5,203 flasks, against 8,189 flasks last year.

Imports of quicksilver into Great Britain for the eight months ending August 31st were 398,218 lbs. (3,795,164 lbs., 1899). Exports were 1,108,888 lbs. (1,474,471 lbs., 1899), showing that 710,670 lbs. were withdrawn from stocks this year, while last year there were 2,320,693 lbs. consumed or added to stocks.

Minor Metals and Alloys.—Wholesale prices, f. o. b. works, are as follows:

	Per lb.		Per lb.
Aluminum.		Ferro-Titanium (20%)	$1.00
No. 1, 99% ingots	.33@37c.	Ferro-Tungsten (37%)	.35c.
No. 2, 90% ingots	31@34c.	Magnesium	$2.75@3
Rolled sheets	42c. up	Manganese (over 99%)	$1.05
Alum.-bronze	20@23c.	Mangan'e Cop. (20% Mn)	32c.
Nickel-alum	33@39c.	Mangan'e Cop. (30% Mn)	38c.
Bismuth	$2.25	Molybdenum (Best)	$1.45
Chromium (over 99%)	1.00	Phosphorus	50c.
Copper, red oxide	55c.	American	70c.
Ferro-Molyb'um (50%)	$1.00	Tungsten (Best)	.92c.
Ferro-Titanium (10%)	90c.		

Variations in prices depend chiefly on the size of the order.

LATE NEWS.

A London dispatch of September 28th reports that the sale of the Camp Bird Mine at Ouray, Colo., to the Venture Corporation, of London, for $7,000,000—to which reference has been made in our columns—has fallen through. It is said that Mr. John Hays Hammond, to whom the matter was referred, declined to recommend the purchase.

Mr. J. H. McCune, manager of the furnaces of the Sloss-Sheffield Steel and Iron Company, has resigned that position and John H. Means, who formerly held the position, but afterward went with a Virginia furnace company, has been reappointed to the office. Mr. Means will at once enter upon the discharge of his duties. He will have charge of the seven blast furnaces of the company at Birmingham, Florence, and Sheffield.

The Anaconda Copper Mining Company, of Montana, has declared a dividend of $1.25 per share and an extra of 75c., amounting in all to $2,400,000, payable October 27th. In the present year the company distributed $4,800,000, making a total since incorporation of $16,950,000, or 56½%, on the authorized capitalization of $30,000,000.

The Parrot Silver and Copper Mining Company, of Montana, will pay its regular quarterly dividend of $1.50 per share ($344,775) on October 29th. This makes a distribution this year of $1,379,100, and the total to date $4,393,834, on an authorized capital stock of $2,300,000.

Juab County—Utah.

(From Our Special Correspondent.)

Centennial-Eureka.—It is understood that the figures of production of the different metals recently given to the public as for the first half of the year include December, 1899. It is said that the treatment contract with the American Smelting and Refining Company is not to the advantage of Centennial shareowners and that the largest profit will be realized when the ores are treated with the pyritic products of the United States mines.

CHEMICALS AND MINERALS

(For further prices of chemicals, minerals and rare elements, see page 390.)

New York. Sept. 28

Consumption is regular, deliveries being chiefly on contract. Some new contracts are noted this week, especially for domestic chemicals, while the ruling high ocean freight rates on the foreign articles unsettle prices and prevent business for future delivery.

Heavy Chemicals.—Sales of domestic high test alkali from second hands are reported at 85c. per 100 lbs. f. o. b. works. Domestic caustic soda for 1901 6delivery shows an improved business at $1.75@$1.80 per 100 lbs. f. o. b. works. Bleaching powder is in request, though most deliveries are on contract, and 1901 business has not yet been considered. Chlorate of potash, owing to pressure by domestic makers to sell, has weakened and purchases have been made at $8.50 per 100 lbs., while, it is claimed, 25c. per 100 lbs. less can be obtained. Foreign chlorate of potash is somewhat higher, owing to the firm freight market. We quote per 100 lbs. as follows: Domestic soda ash in bulk is worth 2¼c. per 100 lbs. less than quotations below:

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, 58%.	75@80	....	90@95
" 48%.	80@85	....	$1.00@1.05
Caustic Soda, high test....	$1.85@$1.90	.....	2.40@2.55
powd. 60%.	.....	3.00@3.25	....
70@74%.	.....	3.25@3.50	... .
98%.	....	3 50@4.00	3.75@4.00
Sal Soda	70@80.	....	67½
"conc.	1.45@1.75	....	1.75
Bicarb. Soda..	1.25@1.37½	.....	1.75@2.25
" " extra	3.25@3.50	.....	.....
Bleach Pdr., Eng. prime..	.....	....	1.75@2.00
other br'nds.	....	.....	1.50@1.75
Chl. Pot cryst	. ...	8.37½@8.50	9.75@10.00
" powd.	....	8.50@9.00	10.00@10.25

Acids.—There is practically no change in acids, demand being regular and prices firm. The scarcity of water for steam power in the Fall River textile mills has interfered with their operation, and some had to shut down altogether. This will lessen the demand for acids in that quarter, but it is believed that the mills will not remain idle long. Blue vitriol for export is in better request, and the limited stocks in makers' hands have strengthened prices. The exports of blue vitriol from Great Britain in the eight months ending August 31st amounted to 38,515 long tons, against 36,596 tons last year.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, No.8 in lbs....$1.62½	Nitric, 36° $3.87½
Blue Vitriol. ....5.12½@5.25	Nitric, 38°..... ..... 4.12½
Aqua Fortis, 36° 3 62½	Nitric, 40° 4.37
Aqua Fortis, 38° 3 87½	Nitric, 42°..... ..... 4.75
Aqua Fortis, 40° 4.12½	Oxalic . ..5.87½@6.00
Aqua Fortis, 42° 4.50	Sulphuric, 66°... . 1.20
Muriatic, 18°..... 1.20	Sulphuric. 60° . 1.05
Muriatic, 20°. 1.35	" bulk 50° ton 14.00
Muriauc 22°..... 1.50	

Brimstone.—The market is firmer, owing to the limited spot supply of crude brimstone. Holders ask $25@$26 per ton for best unmixed seconds ex-store, while for October arrivals importers quote $21.75@$22.25. Futures are worth $21@$21.25. Best thirds are quoted $2 less per ton. The imports of brimstone into Great Britain in the eight months ending August 31st amounted to 13,857 long tons, against 14,027 tons last year.

Pyrites.—Imports at New York this week were 2,571 metric tons copper pyrites and 966 tons iron pyrites from Huelva, Spain. Contract deliveries are good, while prices are easier. The imports of pyrites into Great Britain in the eight months ending August 31st were 487,942 long tons, against 471,589 tons last year, showing an increase of 16,353 tons. We quote: Mineral City, Va., dump ore (basis 42%), $4.75 per long ton and fines $4.20. Charlemont, Mass., lump, $5.50, and fines $5. Spanish pyrites, 12@14c. as to percentage of sulphur contents, delivery exship New York and other Atlantic ports. Spanish pyrites contain from 46%@51% of sulphur; American, 42@44%.

Fertilizing Chemicals.—Leading ammoniates are in moderate request for immediate shipment. Some large contracts for 9@20% tankage have been booked on the basis of $17 per ton, f. o. b. Chicago. The fish catch has been greatly interfered with by the recent heavy storms, hence stocks of scrap are comparatively light. The Home Mixture Guano Company, of Columbia, Ga., started its plant recently with an annual capacity of 13,000 tons acid phosphate, and about the same quantity of complete fertilizers. The American Fertilizer Company, of Norfolk, recently declared its usual annual dividend of 8%.

Quotations are: Foreign sulphate of ammonia, gas liquor (25%), $2.75@$2.80 per 100 lbs., and domestic, $2.70, f. o. b. Everett, Mass.; high grade Western blood, fine ground, $2.20@$2.25 per unit; high grade New York blood, $2.10@$2.15; tankage, 9@20%, $1.75 and 10c. per unit, f. o. b. Chicago; azotine, $1.90@$2 per unit; fish scrap, dry, $21@$21½ per ton, f. o. b. factory; Calcutta bonemeal, $23@$24 per ton; domestic steamed bone, ground, $20@$22 per ton; bone black, spent, $15@$16 per ton.

Nitrate of Soda.—The market continues quiet, though prices are a little firmer. Sales on spot have been made at $1.75@$1.77½, and further small transactions for future delivery are noted at $1.77½@$1.80 per 100 lbs. The coast market is firm, and freights are a little more active. The unsettled condition in the far East will have a tendency to keep freights stiff with a probability of a little further advance. The steamer "Bellailsa" with 35,700 bags has sailed from the West Coast of South America for Baltimore direct. The "Juanita North," with 39,500 bags, sailed for Philadelphia on September 4th. The "Bellagio" has been chartered for the United States at 32s. 6d., and is expected to sail in October with about 40,000 bags.

In the following table we give the statistical position of nitrate of soda for the 7 months ending July 31st, comparison being made with the corresponding period last year, in long tons of 2,240 lbs.:

	1899.	1900.	Changes
Chile production.....	773,702	823,777	I. 50,075
" exports	654,296	602,862	D 51,434
Europe imports.....	844'680	766,350	D 84,330
" deliveries	911,570	908,390	D. 3,180
U. S. imports	62,729	91,581	I. 28,852
" deliveries.....	58,566	85,592	I. 27,026

The total consumption of the whole world during this period was 1,042,942 long tons, as against 1,029,154 tons in the same seven months of 1899, showing an increase of 13,788 tons in 1900.

Messrs. Jackson Brothers, of Valparaiso, Chile, quote 95% nitrate of soda there for September—December delivery at 5s. 4½d. ($1.29) per cwt., ordinary terms sellers; and 96% for same delivery at 5s. 5½d. ($1.31) per cwt. Sales in the fortnight ending August 13th were 103,000 qtls. (4,672 long tons), and resales, 8,000 qtls. (363 tons).

Phosphates.—The strong freight market has advanced the selling price of American phosphates in the foreign markets, as noted in our quotations below. The f. o. b. prices, however, have not improved; in fact, Tennessee rock is lower, as certain mines are said to be selling at less than the Mt. Pleasant Association quotations. South Carolina rock is in better request, and the domestic shipments of crude in August are reported at 4,365 tons.

On September 21st Navassa Island, in the Caribbean Sea off the west coast of Haiti, was sold at auction in New York for $25,000 to Eugene L. Richards, who is understood to have acted in behalf of B. H. Jefferson and Wyatt Owen, of Baltimore. Many years ago the island was acquired by the Navassa Phosphate Company, comprised of Baltimore men, for $200,000 who developed the immense guano deposits there. The company did an enormous business for a long time, having practically a monopoly of phosphates, but the discovery of large phosphate beds in the United States injured the business, and for several years the company has paid no dividends. The company is to be reorganized after its debts have been fully liquidated.

Phosphates.	Per Ton F. o. b.	C. i. f. Un'd Kingdom or European Ports.	
		Unit.	Long ton.
*Fla. hard rock (77@80%)	$7.50@8.00	8½@8¾d	$13.26@13.66
*Fla. land pebble (68@72%)	4.35	7⅛@7¾d	10 50@10.85
*Fla Peace River (58@63%)	3.00@3 50	7½@7¾d	9.00@9.30
†Tenn. rock 78%, export.	3.50@4.00	7⅛@7¾d	11.70@12.09
†Tenn.....78% domestic.	3.00@3 30	.....	.....
†Tenn.....75% "	2.75@3.00	.....	.....
†Tenn .....72% "	2.25@2.65	.....	.....
‡So. Car. rock, crude....	4.00	.....	.....
§So. Car. rock, dried.....	4.50	6¾d	8.10
Algerian, rock...(63@70%	.....	7@7⅛d	9.38@10.05
Algerian, rock...(58@63%)	.....	6¾@7¼d	8.10@8.70

* Fernandina. † Mt. Pleasant. ‡ At mines. § On vessels, Ashley River.

Liverpool. Sept. 19.

(Special Report of Joseph P. Brunner & Co.)

There is a moderate trade passing in heavy chemicals, but outside of caustic soda there is no special activity to report.

Manufacturers are now quoting for bleaching powder for home consumption over 1901, but quotations for other lines for delivery over next year are not yet announced, although it is expected makers will be in a position to quote by the end of this week.

Soda ash is in moderate supply and prices are firm at about the following range for tierces, for prompt delivery: Leblanc ash, 48%, £5@£5 5s.; 58%, £5 10s.@£5 15s. per ton net cash. Ammonia ash, 48%, £4 5s.@£4 10s.; 58%, £4 10s.@£4 15s. per ton net cash. Bags, 5s. per ton under price for tierces. Soda crystals are moving off steadily at generally £3 2s. 6d. per ton, less 5% for barrels, or 7s. less for bags, with special terms for a few favored markets. Caustic soda is in demand at full prices and supplies are in moderate compass, several makers being fully sold for balance of this year. Spot quotations are as follows: 60%, £9 5s.; 70%, £10 5s.; 74%, £10 15s.@£10 17s. 6d.; 76%, £11 5s.@£11 10s. per ton net cash.

Bleaching powder is quiet on spot and quoted at £6@£6 10s. per ton for hardwood, as to market. For softwood over 1901, makers are now quoting £6 17s. 6d. per ton free on rails, for home consumption. Twelve months ago the price for contracts over this year was £5 5s., so that the price named for 1901 is a very substantial advance as compared with the figure at which the bulk of consumers' contracts were entered for this year's requirements.

Chlorate of potash is quiet at 3¾@4d. per lb.

Bicarb. soda is in moderate request at £6 15s. per ton, less 2½% for the finest quality in 1 cwt. kgs, with usual allowances for larger packages, also special quotations for certain favored markets.

Sulphate of ammonia attracts little attention from buyers and £10 17s. 6d.@£11 2s. 6d. per ton, less 2½%, may be called about spot range for good gray 24@25% in double bags f. o. b. here, as to quality.

Nitrate of soda is not active, but there is a fair amount of business passing on spot, while prices range from £8 7s. 6d.@£8 12s. 6d. per ton, less 2½% for double bags f. o. b. here, as to quantity and quality.

Messina, Sicily. Sept. 1.

(Special Report of Emil Fog & Sons.)

Brimstone.—In August a brisk business was done. Best unmixed seconds continued to be scarce and prices have again appreciated. Best thirds are plentiful and neglected. The noteworthy feature was the proposed new agreement that the Anglo-Sicilian Sulphur Company presented to owners and lessees of mines at a meeting held in Palermo. Same is an improvement on the existing contract so far as prices are concerned; also because no restriction on the output of the mines is asked, notwithstanding the increased production which high values has stimulated; but a majority of from 89 to 90% of adherents is required. The drawback appears to be the duration of the contract which, while binding subscribers for 9 years, gives the company the option to cancel it two years hence or any year thereafter. The results of the negotiations will be made known on November 15th. Should they fall through, the prolongation of the present contract for the term of 5 years can be considered as sure. We quote refined block sulphur (100%) at 82s. ($19.68); best unmixed seconds, 77s. ($18.48), and best thirds, 67s. ($16.08), per long ton, f. o. b. shipping port.

Tonnage remains scarce. Ballast lots to New York are quoted 9s. and to Baltic ports 17s.

The exports of brimstone in August aggregated 35,997 long tons, against 32,655 tons last year; an increase of 3,342 tons. Stocks in Sicily on August 31st were 211,205 tons, against 229,941 tons at the same time last year; a decrease of 18,736 tons.

MINING STOCKS.

Complete quotations will be found on pages 387 and 388 of mining stocks listed and dealt in at:

Boston.	Philadelphia.	Montreal.
Colo. Springs.	Salt Lake.	London.
Denver.	San Francisco.	Mexico.
New York.	Spokane.	Paris.
	Toronto.	

New York. Sept. 28.

Further declines are noted this week in prices, especially in the copper shares, notwithstanding the efforts at support on the inside. Amalgamated dropped 3¾ points to $84¾ on sales, but strengthened again to $86, as the stock will be sold ex-dividend of $2 per share after to-day. Anaconda dropped 2½ points to $41½, and after rising to $42½, fell again to $40¼, or $2¾ below the lowest quotation last week. British Columbia reappeared on curb with sales at $10⅝@$11, and a fair business was reported in Union of North Carolina at $2@$3.

Of the California shares, Standard Consolidated sold at $4.25, Brunswick at 28c., Plymouth 12@14c., and Syndicate at 9c.

The Colorado section was weak. Elkton of Cripple Creek lost 5 points at $1.65, but later rose to $1.73. Isabella dropped from 93c. to 88c., Anaconda from 49c. to 40c. Mt. Rosa sold at 55c., Mollie Gibson at 26@25c., Golden Fleece 25c., Little Chief 17c., Pharmacist 13½@13c., Cripple Creek Consolidated 12½@11c., and Leadville at 6c. There was a sale of 1,000 shares of Hart Mining and Leasing Company of Cripple Creek at 18c. It has a capital stock of $1,000,000 in $1 shares, and the property a fraction over 30 acres on Bull Hill. On January 1st, this year, the company had $6,000 in cash in treasury. Last year the stock sold on the Colorado Exchanges at 25@10c.

A little more was done in the Comstock shares and Consolidated California & Virginia sold at $1.20, Ophir 60c., Gould & Curry 37@35c., Sierra Nevada 35c., Mexican 30c., Yellow Jacket 24c., Potosi 23@22c., Hale & Norcross 20c., and Kentuck 4c.

Ontario of Utah sold at $6.25, and Horn Silver at $1.20. Alice of Montana made its first sale in weeks at 52c.

We note an auction sale of 100 shares of the

Abendroth & Root Manufacturing Company (hypothecated) at $50.

Boston. Sept. 27.

(From Our Special Correspondent.)

There was some activity early in the week, but it was due entirely to a pressure to liquidate. The dealing was almost entirely professional. The more sanguine operators thought that the low prices reached on the reaction might attract the public. It is evident, however, that prices are not low enough yet for that purpose, and the market yesterday and to-day was about as dull and narrow as it could be and move at all. The public has had its lesson in copper and it not coming in again until the memory of the last boom has faded. Moreover some men who have kept an interest in coppers for years tell me that they have dropped it since blind pool tactics came into the Boston market; and there are many like them.

Calumet & Hecla was quoted at $740; Boston & Montana, $308; Tamarack, $230; Osceola, $64; Wolverine, $40; Arcadian, $16½.

The gold stocks were very quiet and few sales were recorded. Hardly a bid was made to-day.

New England Gas and Coke hangs around $10½ and Dominion Coal is $38½. The raiders seem to be rather tired of the indifference with which their efforts are regarded.

The Exchange adjourned at 1 o'clock last Friday as a mark of respect to the late president, Elisha D. Bangs, whose funeral took place on that day. Mr. Bangs had been a member of the exchange over 30 years and was very generally respected and liked. He had announced some time ago that he did not desire another term in the presidency.

Colorado Springs. Sept. 22.

(From Our Special Correspondent.)

Heavy liquidation in order to secure immediate ready money was the feature of the past week. In connection with the downward turn of the market the banks began calling in collateral stock on loans and much of the trading in the latter days of the week was of this character.

Elkton was the prominent feature of the week. It declined to $1.65 a share, but the closing quotation was $1.71¾. Quite a good deal of this stock, which had been put up with the banks as collateral, was sold this week to cover in loans.

Portland shared the general decline and sold down to $3, Tuesday. It rallied, selling to-day at $3.25, with little stock coming out. Portland holders are satisfied to hold. A quarterly dividend of 6c. a share, or $180,000, will be paid October 15th.

Isabella sold down to 84½c.; but recovered to 90c. to-day. The company paid its quarterly dividend of 1c. a share or $22,500 to-day. The usual rate during the past year has been 3c. a quarter.

In spite of the dropping prices, the volume of trading was quite large. The bank clearings of the week are therefore well up to the average and are $1,052,000.

Salt Lake City. Sept. 22.

(From Our Special Correspondent.)

There is a steady increase of business. The latest ore uncovering is in Star Consolidated, the shares of which give signs of getting back to the boom days. Mercur made a leap to $8.50, while Consolidated Mercur topped $5. This caused a brief surprise. Total sales for the week were 58,602 shares, which sold for $32,036.

Centennial-Eureka has had a standing bid of $18. The intimation from Boston that the quarterly dividend is to be reduced to $50,000 had less influence here than at the East. Even in Boston it was well discounted beforehand. A report is out that Consolidated Mercur will pay $100,000 dividend in October, for the months of August and September, which will permit the quarterly dividends to embrace the months of the regular quarters thereafter. Daisy is still around $1. Daly holds well above $2. Daly-West recovered the softness of last week and rules higher and firm. Dexter is being pushed toward $1, but there is no demand. Just at present Mammoth seems more anxious to press the lawsuit and the Grand Central folk are luke-warm. Mammoth has declared the $20,000 dividend, payable October 1st. The shares are higher and in more favor. Star Consolidated did a brisk business at steadily advancing quotations. Swansea hangs above $4. Yankee Consolidated drooped a few points from last week, by liquidating, but closes strong and in good form.

San Francisco. Sept. 22.

(From Our Special Correspondent.)

A rise in Ophir this week was the only point which relieved the monotony of the usual story of light trading and low prices. This rise was due to reports of favorable indications found in the Burning Moscow ground of the company, where development work is now being carried on.

Some quotations noted are: Consolidated California & Virginia, $1.10@$1.15; Confidence, 80c.; Ophir, 49@50c.; Silver Hill, 40c.; Gould & Curry, 34c.; Mexican, 29@30c.; Sierra Nevada, 32c.; Yellow Jacket, 22c.

The Oil Exchange shows a great deal of activity. Sales of stock have been very good, the demand covering prospects as well as producing companies.

The quotations reported are: Kern River, $19.25@$19.50; San Joaquin Oil and Development, $7.75@$8; Home, $4.65@$4.70; Sterling, $2.25; Royal, $2; Twenty-eight, $1.60; El Dorado, 1.40; Four Oil, 48@50c.; California Standard, 39c.; American Fuel, 34c.; Independence, 20c.; Caribou, 20c. Prices are generally strong.

London, England. Sept. 11.

(From Our Special Correspondent.)

The mining stock market continues to be quiet and very little business is going on. South African stocks are tending to become harder, chiefly owing to the receipt of reports to the effect that little or no damage has been done to the gold mines and plant. The continued retreat of the main army of the Boers also tends to strengthen the market, though everyone expects that there will be plenty of irregular resistance before the country is pacified. To give an idea of the slackness of business on the Stock Exchange, I may mention that it has been quite a frequent practice to close the exchange entirely on Saturdays. Such a thing has been very rare in previous years, but nowadays the desire to close on Saturdays seems universal among Stock Exchange men.

On more than one occasion lately I have mentioned that there is an inclination to look fo American propositions to introduce on the London market. I am now given to understand that the Venture Corporation, which introduced Stratton's Independence here, has secured an option on the Camp-Bird Gold Mines in Ouray County Colo. The price wanted by Mr. T. F. Walsh the owner, is £1,400,000 in cash. The property has been reported on by Mr. T. A. Rickard, and Mr. John Hays Hammond is now engaged in examining it. When the company is floated here the capital will be £1,000,000, and there will also be debentures amounting to £1,400,000. Th whole of the issue will be guaranteed, so that shares will only come on the market from the vendors and not be offered for public subscription. Further particulars of the mine will be awaited with much interest by English investors

The Anglo-Colorado Exploration Syndicate, Limited, which owns the Rigi Mine at Cripple Creek, has been unfortunate so far in its operations. The company was originally floated by Mr. von Richthofen of Denver, and as the property adjoins the Portland and is near Stratton's Independence, investors here had great hopes. It has turned out that the property is of little value, for, although there are undoubtedly a number of veins, there is little or no pay ore. Here and there patches of ore are met that pay to ship, but there is nothing like continuity. The company came to the end of its money and now leases the property out on royalty. The lessees have sunk 200 ft. and driven each way without encountering anything satisfactory. The English shareholders have not much prospect of any returns.

Paris. Sept. 16.

(From Our Special Correspondent.)

The Bourse has been rather quiet, and mining shares have not been very conspicuous since my last letter.

The shares of the metallurgical companies are in an uncertain state; their business continues good, but the high prices of coal and coke are decreasing the profits. A few companies, which own collieries and control their own supplies have a great advantage just now. The Acieries de Longwy announce a dividend of 50 fr. per share, or 10%; this is an increase of 5 fr. over last year.

The Russian group has shown more activity. The iron stocks are weaker and fluctuating but the coal stocks are strong and generally higher.

Copper stocks remain firm, as appears natural in view of the great demand for the metal. There have been few fluctuations and those generally advances. Boleo remains very firm.

Huanchaca shares are higher, and the reports from the great silver mine are favorable—more so than for some time past.

The lead and zinc shares are firm, in view of the well-sustained prices of those metals The Penarroya Company in Spain has extended its business and strengthened its position by purchasing some coal lands, including a colliery already in operation. A new stock on our Bourse is the Societe des Zincs de Silesie, a company doing a large business.

The movement of gold and silver in France for the seven months ending July 31st is reported by the Ministry of Commerce as below:

	Imports, Francs.	Exports, Francs.	Excess. Francs.
Gold:			
1900	246,842,048	36,638,283	Imp. 210,203,765
1899	188,056,312	75,646,001	Imp. 112,410,131
Silver:			
1900	94,094,704	121,149,661	Exp. 27,054,957
1899	111,727,992	116,677,412	Exp. 4,949,420

Imports of copper and nickel coins, taken at their face or coin value, amounted to 35,100 fr. against 43,200 fr. in 1899. Exports of these coins were 227,100 fr., against 371,700 fr. last year.

The foreign merchandise trade of France for the eight months ending August 31st is reported by the Ministry of Commerce as below:

	1899. Francs.	1900. Francs.
Imports	3,023,912,000	2,999,866,000
Exports	2,657,761,000	2,665,328,000
Excess, imports	366,151,000	334,538,000

The decrease in imports was partly in food products and partly in raw materials; there was an increase in manufactured goods. In exports there was an increase in food products, decreases in raw materials and manufactures.

The South African gold shares have been very quiet. Evidently no one wishes to do much with them until there is a more definite future

The proclamation of Lord Roberts making the Transvaal a British colony raises some questions. It is valid if the British army can enforce it; but other nations have not yet recognized the change. Thus the South African Republic has some property at the Exposition; to whom does it now belong? I do not believ that our Government will turn it over to Great Britain without much diplomatic negotiation if at all. There are other questions, too, which may cause some trouble to the diplomats.

Azote.

ANNUAL MEETINGS.

Name of Co.	Locat'n.	Date.	Place of Meeting.
Horn Silver	Utah	Oct. 2	Salt Lake City, Utah.
*Ludwig Copper	Nev.	Nov. 7	Gold Hill, Nev.
*Magnolia	Colo	Sept. 29	Colo Springs, Colo.
*New Zealand	Colo.	Sept. 29	Colo. Springs, Colo.
Pleasant Valley Coal	Utah	Oct. 1	Salt Lake City, Utah.

*Special meeting.

DIVIDENDS.

Name of Company.	Latest Dividend. Date.	Per share.	Total.	Total to date.
		$	$	$
†Amalgamated C.	Oct. 29	2.00	1,500,000	7,500,000
§Am. Agricul. Chem.	Oct. 1	3.00	510,000	1,514,840
Am. Fuel & Oil, Cal.	Sept. 18	.01	1,000	1,000
†Am. Steel & Wire, com	Oct. 2	1.75	875,000	2,625,000
†Am. Steel & Wire, pf.	Oct. 2	1.75	700,000	5,600,000
†Am. Sm. & Ref., pf.	Oct. 9	1.75	568,750	2,682,553
Arizona Copper, ord.	Sept. 30	.84	132,943	.....
†Boston & Colo. Sm.	Oct. 1	.75	11,250	315,500
*Buffalo Hump, Idaho	Oct. 1	.10	30,000	245,000
§Cambria Steel	Oct. 1	1.00	320,000	1,440,000
Colorado Fuel & I., pf	Oct. 10	8.00	160,000	1,040,000
Croesus, Cal.	Oct. 1	.10	19,000	112,100
†Federal Steel, pf.	Oct. 20	1.50	932,037	6,657,654
†General Chem., pf	Oct. 1	1.50	121,896	519,959
Granite, Colo.	Sept. 15	.01	5,000	35,000
*Gwin, Cal	Sept. 18	.05	5,000	101,500
Home Oil, Cal	Sept. 20	.10	10,000	170,000
*Mammoth, Utah	Oct. 1	.05	20,000	1,790,000
Midget, Colo.	Sept. 15	.01	10,000	25,000
†Mont Ore Purchas.	Sept. 29	1.00	80,000	1,600,000
Morning Star, Cal.	Sept. 15	3.00	7,200	854,400
Napa Quicksilver	Oct. 1	.10	10,000	1,100,000
†National Steel, pf	Sept. 29	1.75	472,500	2,835,000
†National Tube, pf.	Oct. 1	1.75	700,000	3,500 000
†New Idria Quicksilv.	Oct. 1	.20	20,000	250,000
Nighthawk & Nightingale, Colo.	Sept. 20	.17⅐	180,000	180,000
†Peona. Steel, pf.	Oct. 16	1.75	26,250	105,000
†Republic I. & S., pf.	Oct. 1	1.75	371,997	1,905,986
Rex Crude Oil, Cal.	Sept. 24	.03	3,000	3,000
Six Points, Colo.	Sept. 20	.12	120,000	120,000
†Sloss Sheffield Steel & Iron, pf	Oct. 2	1.75	117,250	351,750
†United Zinc, pf.	Oct. 15	.50	7,469	29,361
†U S Oil	Oct. 1	.50	50,000	575,000
Westmorel'd Coal Com	Oct. 1	30	.....	.....
Wolverine, Mich.	Oct. 1	2.00	120,000	510,000
Yukon Oil, Cal.	Sept. 20	.02	2,000	21,000

* Monthly. † Quarterly. § Semi-annual.

ASSESSMENTS.

Name of Company.	Location.	No	Delinq.	Sale.	Amt.
Alliance Expl. & Mg.	Cal.	3	Sept. 11	Oct. 2	.05
Belcher	Nev.	65	Sept. 14	Oct. 5	.10
Ben Butler	Utah	5	Sept. 10	Oct. 2	.00¼
Clarissa	Utah	2	Oct. 1	Nov. 10	.00½
Confidence	Nev.	35	Sept. 17	Oct. 8	.20
Eureka-Swansea Ext.	Utah	2	Oct. 1	Nov. 1	.00¼
Eutonia	Cal	3	Sept. 29	Oct. 13	.00½
Fish Springs	Utah	...	Oct. 15	Nov. 3	.01
Goleta	Nev.	2	Sept. 25	Oct. 25	.15
Gould & Curry	Nev.	91	Sept 8	Oct. 1	.15
Grape Vine Canyon	Cal	3	Oct. 23	Nov. 14	.07
Joe Bowers	Utah	2	Sept. 18	Oct. 5	.01
Julia Con	Nev.	30	Sept. 27	Oct. 18	.03
Justice	Nev.	69	Sept. 22	Oct. 15	.05
Kentuck Con	Nev.	16	Sept. 26	Oct. 17	.03
Mammoth Garfield	Cal.	...	Aug. 4	Oct. 2	.17½
Mariposa Com'l & Mg.	Cal.	18	Oct. 10	Nov. 8	10.00
Mayflower Gravel	Cal.	...	Oct. 22	.....	.05
Mazeppa	Cal.	1	June 28	Oct. 1	.03
North Rapidan	Nev.	...	Oct. 15	.....	.04
Ophir	Nev.	79	Oct. 4	Oct. 24	.20
Park City & Midnight Sun	Utah	...	Oct. 1	.....	.00¼
Savage	Nev.	101	Sept. 18	Oct. 8	.10
Shower Con	Utah	2	Oct. 1	Nov. 1	.02
Sonora	Cal.	...	Oct. 3	Nov. 13	.01
Sunbeam	Utah	...	Oct. 25	.....	.02
Tetro	Utah	15	Oct. 17	Nov. 10	.01
Utah Con	Nev.	34	Oct. 9	Oct. 30	.5
West Park & Swansea	Utah	...	Oct. 8	Oct. 23	.00½
....	...	...	...	...	...
.....	...	...	...	...	...

STOCK QUOTATIONS.

NEW YORK.

NAME OF COMPANY.	Location.	Par val.	Sept. 21. H.	Sept. 21. L.	Sept. 22. H.	Sept. 22. L.	Sept. 24. H.	Sept. 24. L.	Sept. 25. H.	Sept. 25. L.	Sept. 26. H.	Sept. 26. L.	Sept. 27. H.	Sept. 27. L.	Sales
Acacia	Colo.	1	.42												1,000
Alamo	Colo.	1													
Alice	Mont.	25					.52				.52				200
Amalgamated C.	Mont.	100	85.25	85.00	85.25	84.75	85.25	84.38	86.50	86.00	86.25	86.00	87.00	86.50	1,500
Anaconda, c	Mont.	25	42.5	41.75			42.13	41.00	42.00	40.25	41.50	41.00	42.25		4,055
Anaconda Gold.	Colo.	5							.40						500
Argentum-Jun.	Colo.	2	.2												
Belcher	Nev.	3													
Best & Belcher	Nev.	3													
British Col. Cop.	B. C.	10	10.75	10.38	10.75	10.38	10.75	10.38	10.75	10.38	10.88	10.75	11.00	10.50	900
Brunswick	Cal.	1	.26		.30						.28				2,200
Chollar	Nev.	3	.21												
Comstock T.	Nev.	100			.03½				.08						1,100
Con. Cal. & Va.	Nev.	2½	1.20						1.20						200
Creede & C. C.	Colo.	1													1,000
Cripple Cr. Con	Colo.	1			.11½		.12½		.11		.12½				3,000
Crown Point	Nev.	3													
Deadwood	S. Dak	25													
Elkton	Colo.	1									1.74	1.65			900
Father de Smet	S. Dak	1			.43	.42									200
Golden Age															
Golden Fleece	Colo.	1	.25												
Gould & Curry	Nev.	3							.37		.35				900
Hale & Norcross	Nev.	3					.20								300
Homestake	S. Dak	100													
Horn Silver	Utah.	20							1.20						100
Iron Silver	Colo.	20			.69										100
Isabella	Colo.	1	.87		.85		.93		.87		.88				1,200
Jack Pot	Colo.	1													
Kentuck	Nev.	3					.04								1,000
King & Pemb.	Ont.	10													
Lacrosse	Colo.	10													
Leadville	Colo.	10			.06						.06				300
Little Chief	Colo.	1							.17						300
Mexican	Nev.	3	.30	.25					.30						600
Mollie Gibson	Colo.	5	.23		.23				.26	.25					2,000
Moulton	Mont.	25													
Mt. Rosa	Colo.	1									.55				100
Occidental	Nev.	3													
Ontario	Utah.	100	3.50								6.25				70
Ophir	Nev.	3	.49				.60								300
Pharmacist	Colo.	1					.13½				.13				3,000
Phoenix	Ariz.	1	.11	.09	.11	.10	.10		.10						3,400
Plymouth									.13	.12	.14	.13			1,300
Portland	Colo.	1													
Potosi	Nev.	3							.23	.22					835
Quicksilver	Cal.	100													
Savage	Nev.	2½													
Sierra Nevada	Nev.	3					.35								300
Standard Con.	Cal.	10							4.25						100
Syndicate	Cal.	1					.09								200
Tenn. Copper	Tenn.	25	13.25	12.50	13.25	12.50	13.25	12.50	13.25	12.00	13.00	12.00	14.00	12.00	
Union Con	Nev.	2½													
Union Copper	N. C.	10	2.75	2.50	2.75	2.50	2.75	2.50	2.75	2.50	3.00	2.88	3.88	3.75	1,000
Utah Con.	Nev.	1													
Yellow Jacket	Nev.	3									.24				1,000

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.		$100	35⅛	35⅛	35¾	35¼	36	35⅛	35⅛		35¾	35⅛	36¼		4,912
" " " " pf		100	†87	86¾	87⅛	87	87¾		87½	87	87¼	84	88		1,645
Am. S. & W. Con		100	30¾	29¾	30¼	29	30½	29⅝	30¼	29¼	30¾	29⅞	31⅛		39,165
" " " pf'r'n		100	72⅜	71¾	79		71⅝	70	71		71⅜	70⅛	71¾		8,719
Col. Fuel & I.	Colo.	100	31¾	31⅛	31	29¾	30½	29¼	30	29⅛	29¾	29¼	31⅛		5,515
Col. & H. C. & I.	"	100													
Federal Steel		100	31	30⅛	30⅝	30	31¼	30½	31⅜	31¼	31⅝	30⅝	32⅜		20,057
" " pf		100	64	63¾	63¾		63⅝	63	63¾	63¼	†61⅛	61	63		4,103
Fleming'n C. & C	W. Va.	100	27	24	27	22	27	22	27	22	27	22			300
National Lead		100	17				17		16¾						350
" " pf.		100	89¾						89	87¾	88	87½	90		856
National Salt		100									39⅞	35			30
" " pf.		100									65				10
National Tube		100	45	44⅝	45¾	44¾	45	44½			45		45½		2,411
" " pf.		100	92½	92	92⅜	91¾	92				92½		92¾		1,577
Republic I. & S.		100	10¼	10¼	10¼	10	11⅜	11	10⅝	10¼	10⅜	10⅛	10⅞		4,180
" " pf.		100	†50⅜	50¼	50¼		52				51⅜		51¾		1,208
Sloss-Shef		100													
" " pf.		100	62½				62						61½		200
Stan. Oil of N. J.		100	535	532½	535	533	535	533	534	531	534	531			90
Tenn C., I. & R.R.		100	58½	56⅝	56¼	54⅜	57	56	53¾	51¼	55	52⅛	55⅜		46,649
Va. Coal & C.		100	4	3	4	3	4	3	4	2¼	4	2¼			

Total sales, 1,2111. †Ex dividend.

PHILADELPHIA, PA.§

NAME OF COMPANY.	L'cation.	Par Val.	Sept. 20. H.	Sept. 20. L.	Sept. 21. H.	Sept. 21. L.	Sept. 22. H.	Sept. 22. L.	Sept. 24. H.	Sept. 24. L.	Sept. 25. H.	Sept. 25. L.	Sept. 26. H.	Sept. 26. L.	Sales
Am. Alkali		$50	1.50	1.38	1.38		1.50		1.50	1.25	1.25		1.25		2,325
Am. Cement		10	7.50	7.38	7.38	6.50	6.75	6.63	7.00	6.88	7.00	5.75	6.88	6.75	5,588
Bethlehem Iron	Pa.	50											56.25		66
Bethlehem Steel	"	50	13.5	13.00	13.00	12.88	13.00		13.00	12.63	12.50		12.50		1,530
Cambria Iron	"	50			44.6	44.50			44.50						214
Cambria Steel	"	50	15.55	14.5	15.00	14.00	14.25	14.17	14.50	14.00	14.38	13.88	14.13	13.50	23,903
Susq. I. & S.	"	10	1.88		1.88		1.88	1.75	1.88		1.88	1.75	1.88		3,745
United Gas I.	"	50	110¼	107¼	108	107⅝	108¾	108	108		108	105	106¼	105	4,288

Total shares sold, 41,589. § Reported by Townsend, Whelen & Co., 309 Walnut St., Philadelphia.

SAN FRANCISCO, CAL.

NAME OF COMPANY.	Location.	Par value.	Sept. 20.	Sept. 21.	Sept. 22.	Sept. 24.	Sept. 25.	Sept. 26.
Belcher	Nev.	$3.00			.19	.19	.18	.17
Best & Belcher	"	3.00			.28	.27	.31	.30
Caledonia	"	3.00			.41	.40	.42	.42
Challenge Con	"	3.00			.20	.19	.19	.19
Chollar	"	3.00			.19	.19	.19	.19
Confidence	"	3.00			.30	.75	.75	.75
Con. California & Virginia	"	2.50			1.15	1.10	1.10	1.10
Crown Point	"	3.00			.12	.10	.11	.12
Gould & Curry	"	3.00			.35	.32	.32	.32
Hale & Norcross	"	3.00			.20	.21	.22	.22
Justice	"	2.00			.06	.06	.06	.06
Mexican	"	3.00			.30	.29	.31	.31
Occidental Con	"	3.00			.07	.06	.06	.07
Ophir	"	3.00			.55	.50	.54	.52
Potosi	"	3.00			.19	.18	.18	.18
Savage	"	2.50			.18	.16	.16	.16
Sierra Nevada	"	3.00			.32	.31	.31	.30
Standard Con	Cal.	10.00			4.10	4.10	4.10	4.15
Union Con	Nev.	2.50			.19	.18	.19	.18
Utah Con	"	1.00			.05	.04	.04	.04
Yellow Jacket	"	3.00			.20	.20	.21	.20

CALIFORNIA OIL STOCKS.*

Name of Company.	No. of shares.	Par Val.	Sept. 5. H.	Sept. 5. L.	Sept. 6. H.	Sept. 6. L.	Sept. 7. H.	Sept. 7. L.	Sept. 8. H.	Sept. 8. L.	Sept. 10. H.	Sept. 10. L.	Sept. 11. H.	Sept. 11. L.	Sales.
Blue Goose	5,000	$100			15.50	15.00	15.50								
Buckhorn	16,000	10.00	4.00	3.00	3.75	3.00	4.50	3.50	3.90						250
Home	100,000	1.00	4.00	3.95	4.00	3.90	4.00	3.90	3.95	3.90					2,000
Homestake	10,000														
San Joaquin	100,000	1.00	5.00	4.90	5.00	4.95	6.00	4.90	5.50	5.00					300
Yukon	100,000	2.50	.67	.63	.65	.68	.63	.60	.65	.62					1,350

* California and Producers Oil Exchanges. Total sales, 3,900 shares.

BOSTON, MASS.†

NAME OF COMPANY.	Par val.	No. of shares.	Sept. 20. H.	Sept. 20. L.	Sept. 21. H.	Sept. 21. L.	Sept. 22. H.	Sept. 22. L.	Sept. 24. H.	Sept. 24. L.	Sept. 25. H.	Sept. 25. L.	Sept. 26. H.	Sept. 26. L.	Sales
Adventure Cons.	$25	100,000			4.00						4.00				115
Aetna Cons.	5	100,000	1.00		1.00										150
Allouez	25	80,000	1.25		1.25						1.50		1.50		225
Amal. Copper	100	750,000	87.50	85.00	86.00	85.00	85.00	85.00			86.50	85.63	86.50	86.25	1,548
Am. Z., L. & S.	25	60,000													6
Anaconda	25	1,200,000	42.75												
Arcadian, c	25	150,000	18.00		17.00				17.00	16.00	17.00	16.00	15.50		1,040
Arnold	25	60,000	4.00						4.00						110
Atlantic, c	25	40,000											22.50		110
Baltic, c	25	100,000													
Bingham, c. g	10	190,000			10.75										25
Bonanza	10	300,000			80.00	75.00									270
Boston	10	100,000													
Bos.& Mon.,Tr.R	25	150,000	313	310	311	308½	308				307	300	308		326
Breece	25	200,000									2.00		2.60		200
British Col.	5	200,000					10.63						11.00		25
Butte & Bost., c.	10	200,000	61.00	56.00					56.00	54.88					295
Cal. & Hecla, c.	25	100,000	745	743	740	738	738		735		740				33
Centennial, c.	25	90,000	14.50	14.00	14.00		14.00	13.50	13.50				13.50		652
Cent'l-Eureka	25	200,000	19.00	18.63	18.50		18.50				19.00	18.63	19.25		1,105
Cochiti, g	25	60,050	8.00		8.13	8.06			8.75	8.38	8.25		8.50		690
Copper Range	10	110,000	18.00				18.00				18.00				200
Crescent	10	300,000													
Dominion Coal	25	100,000	38.75	38.50	38.25		38.50		38.50	38.00	38.50		38.75	38.05	915
do, pref.	100	150,000			111				111	110½	110½	110			268
Elm River	100	20,000	3.13	3.00							3.00				320
Franklin, c	100	532,610													
Humboldt	25	40,000													
I. Royal Con., c.	25	100,000	28.50	28.00	28.00		28.50	28.00			28.00		28.38	28.00	665
Mass Con.	25	100,000	6.88	6.75					7.00				7.00		315
Mayflower	25	100,000	1.25	1.00	1.00										350
Mohawk, c	25	300,000			16.50	16.00					15.50		16.00		255
Mont. C. & C.	25	200,000	6.50										6.38		300
N. A. G. Dreg.	10	100,000			1.00								10.50		1,010
N.E. Gas & Coke			10.50	10.00	10.00						19.00	18.63			715
Old Colony	25	100,000													
Old Dominion, c	25	150,000	17.00	15.75	16.00		16.00								920
Osceola, c.	25	93,000	64.75	64.00	64.50	63.50			65.00				64.25		351
Parrott, s c.	10	229,850	40.25	39.63	40.25	39.50	40.00	39.50	40.00	39.00	40.63	40.00	40.63		2,569
Pioneer	10	100,000													
Quincy, c.	25	100,000	145½	140	140						142		145		51
Rhode Island	25	100,000	2.25		2.25	2.38	2.50								115
Santa Fe, g. c.	10	250,000	4.50		4.50		4.50				4.50	4.38			645
Tamarack, c.	25	60,000	235	231	231		230¼	229	230	228	230		230	229½	279
Tecumseh	25	80,000													
Tri Mountain	25	100,000	8.50		8.00		8.25		8.50						610
United States	25	250,000													
Utah Cons., g. c.	5	300,000	29.25	28.50			29.00	28.75	28.25	28.00	28.25	28.00			1,865
Victor, g.	5	200,000													
Victoria	25	100,000	2.00				2.00				2.00				405
White Knob	100	50,000			10.00										25
Winona, c.	25	100,000													
‡Wolverine, c.	25	60,000	39.25	39.00	40.00	39.00	39.75	39.50	40.00		39.00		40.00	39.50	666
Wyandotte	25	100,000			1.25		1.13								50

† Official quotations Boston Stock Exchange. Total sales, 20,779.

SALT LAKE CITY, UTAH.

Sept. 22

STOCKS.	Shares.	Par val.	Bid.	Asked.	STOCKS.	Shares.	Par val.	Bid.	Asked.
Ajax	300,000	$10	$0.43½	$0.51¼	Horn Silver	400,000	$25	$1.15	
Alice	400,000	25	.37½		Joe Bowers	400,000	1	.02½	$0.03
Bullion-Beck & Ch.	100,000	10	8.90		Joe Bowers Ext	700,000	¼	.00⅞	
Centennial Eureka	200,000	25	18.00	25.00	Little Pittsburg	400,000	5	.00¼	.00⅝
Chloride Point	500,000	1		.02	Lower Mammoth	150,000	1	.42¾	.44
Cons. Mercur	100,000	5	4.75	5.25	Mammoth	400,000	5	2.27	2.28½
Daisy	500,000	3	.00¼	.02	May Day	400,000	¾	.40	.43
Dalton	500,000	5	.03½	.04	Mercur	200,000	25		
Dalton & Lark	2,500,000	1	.02	.07	Northern Light	400,000	5	.04½	.07½
Daly	150,000	20	2.06	2.08	Ontario	150,000	100	5.50	
Daly-West	150,000	20	18.60	18.75	Sacramento	1,000,000	5	.33¼	.34½
Dexter	200,000	5	.90	.98	Silver King	150,000	20	52.00	
Eagle & Blue Bell	250,000	1	.65	.80	Star Consolidated	500,000	1	.67⅝	.68¾
Four Aces	250,000	1			Sunbeam	250,000	1	.21	.30
Galena	100,000	10	.06	.15	Swansea	100,000	5	4.00	4.10
Geyser-Marion	300,000	5		.01¾	South Swansea	150,000	1	1.23	1.27½
Golden Eagle	250,000	1	.01	.01¾	Utah	100,000	1	.80	1.00
Grand Central	250,000	1	4.60	5.25	Valco	200,000	10	.10	.30
Homestake			.01		Yankee Consol'd	250,000	0.10	.21½	.22

TORONTO, ONT.

NAME OF COMPANY.	Par val.	Sept. 15. B.	Sept. 15. A.	Sept. 17. B.	Sept. 17. A.	Sept. 18. B.	Sept. 18. A.	Sept. 19. B.	Sept. 19. A.	Sept. 20. B.	Sept. 20. A.	Sept. 21. B.	Sept. 21. A.	Sales
Ontario:														
Golden Star	1	.06¾	.07	.06¾	.06¾	.06¼		.06	.06¼	.06	.06⅜	.06	.06¼	3,000
Ham Reef	1	.05⅛	.05¼	.05⅛	.05¼			.04	.04⅛	.04¼	.04½	.04¼	.05	5,760
Olive	1							.14						
British Col.:														
Athabaska	1													
Big Three	1													
Cariboo M'k	1	.82	.88	.82	.90	.72	.88	.82	.89	.83	.88½	.80	.88	
Crow's N. C.	25					39.00				39.00				
Dardanelles	1	.01½	.03	.01½	.03	.01	.03	.01½	.02½	.03		.01½	.03	
Deer Trail	1	.04	.04½	.03¾	.04½	.03¾	.04	.03¾	.04	.04	.04⅛	.03⅝	.03⅞	1,000
Eve Star	1			.07	.08½	.07	.08½	.06	.08¼	.06	.08	.06	.08	
Fairview	1	.02¼	.02¾	.02½	.02¾	.02¼	.02¾	.02¼	.02¾	.02¼	.02¾	.02¼	.02¾	
Iron Mask	1	.35	.43	.35	.45	.30	.42	.35½	.39	.35	.45	.34	.40	
Jim Blaine	1	.07¼	.11	.07	.11	.06	.10	.07	.11	.07	.11	.06	.11	
Knob Hill	1	.45	.55	.50	.54	.48	.54	.45	.55	.45	.54	.45	.55	
Mont Cristo	1													
Mont & Lon	0.24													
North Star	1	1.00¼	1.00½	.99¾	1.01	.98	1.01	.92½	.97½	.92½	1.00	.94	.97	
Payne	1	.95	1.05	1.00	1.00½	.99	1.03	.94	.99	.91	1.00	.90	1.00	
Princess M.	1	.02¼	.04	.02½	.04	.02¼	.04	.02¼	.04	.02	.04	.02	.04	3,750
Rambler	1	.28½	.30	.26	.28½	.27¼	.28½	.25¾	.26⅞	.25¼	.26½	.25	.26½	
Republic	1	.82½	.86	.83	.84	.81	.83½	.76½	.81	.75	.80	.74	.76	1,500
Van Anda	1					.01	.01½					.01		5,000
Virtue	1	.69	.68	.64	.70	.65	.68	.56	.65	.56	.61	.56	.62½	
War Eagle	1	1.54	1.59	1.53	1.58	1.52	1.58	1.50	1.56	1.50	1.55	1.52	1.54½	
Waterloo	0.10	.02	.02¼	.01½	.02½	.02	.02¼	.02	.03	.01¾	.02¼	.01½	.02¾	
White Bear	1	.02		.02		.02¼								
Winnipeg	1	.07	.09	.07½	.09	.07	.09	.06½	.08½	.06	.09	.05	.09	
Develop Co.:														
B.C.G. Field	1			.03⅜		.03¼								
Can. G. F. S.	0.10	.07⅜	.08¼	.07⅜	.08	.07¾	.08	.07¾	.08	.07¾	.08	.07½	.08	

Total shares sold, 20,010.

SPOKANE, WASH.

NAME OF COMPANY.	Par val.	Week Sept. 20. B.	Week Sept. 20. A.	Week Sept. 20. Sales.
Crystal		.03	.06	998
Deer Trail Con	$1	.03½	.04¾	
Evening Star	1	.06	.08½	
Gold Ledge		.01	.02	
Jim Blaine		.05	.11	
Lone Pine-Surp. Con	1	.08½	.10	2,000
Morning Glory	0.10	.05⅜	.07¾	125,500

NAME OF COMPANY.	Par val.	Week Sept. 20. B.	Week Sept. 20. A.	Week Sept. 20. Sales
Mountain Lion		.50	.70	
Princess Maud	0.10	.01½	.02½	4,000
Quilp	1	.19		
Rambler Cariboo	0.25	.23½	.30	4,000
Reservation		.06½	.09¼	
Sullivan		.13¾	.15	2,000
Tom Thumb	1	.17½	.20	2,000

STOCK QUOTATIONS.

COLORADO SPRINGS, COLO.‡

NAME OF COMPANY.	Par val.	Sept. 15. B.	Sept. 15. A.	Sept. 17. B.	Sept. 17. A.	Sept. 18. B.	Sept. 18. A.	Sept. 19. B.	Sept. 19. A.	Sept. 20. B.	Sept. 20. A.	Sept. 21. B.	Sept. 21. A.	Sales.
Acacia	$1	.40	.....	.41½	.41¼	.....	.43	.44	.44⅞	.40¼	.40¼	.39¼	.....	131,700
Alamo	1	.12	.12½	.12	.13	.12	.12½	.12	.13	.12	.13	.11¾	.12¼	6,000
Am. Con	1	.....	.08	.07	.07¾	.06½	.07½	.06½	.07⅝	.06½	.06¾	.06	.06½	6,200
Anaconda	1	.46	.47	.46½	.48	.47	.48¾	.46¾	.48	.....	.45	.41	.43¾	11,300
Anchor	1	.....	.03½	.....	.03½	.....	.....	.....	.03½	.02¾	.03¼	.....	.03⅜	.....
Anchoria L	1	.80	.....	.80	.....	.80	.....	.80	.....	.80	.95	.80	.95	.....
Antelope	1	.02½	.02¾	.02½	.02⅝	.02½	.02⅝	.02½	.02⅝	.02½	.02⅝	.02¼	.02⅝	9,000
Aola	1	.05	.05¾	.05½	.06	.05⅝	.....	.05½	.06	.05½	.05½	.04¾	.05	31,000
Arcadian	1	.04½	.....	.04½	.....	.04½	.....	.04½	.05	.04½	.04¾	.04	.05	6,000
Arg'ntum J	1	.25⅜	.....	.25⅜	.....	.25½	.27	.26⅛	.27	.26	.27	.25½	.28	5,000
Banner	1	.03¼	.03½	.03¼	.03¾	.03¼	.....	.03	.03½	.03¼	.03½	.03	.03⅜	3,000
Battle Mt.C	1	.26	.27½	.26	.27½	.25½	.26	.24½	.24¾	.22¾	.23⅜	.20	.20⅜	31,000
Ben Hur	1	.08⅜	.09⅜	.08⅜	.09⅝	.09½	.09⅝	.09⅝	.09¾	.....	.08⅝	.08	.09½	62,000
Black Bell	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.08½	.10	.....
Blue Bell	1	.11¼	.11¾	.11⅛	.11⅝	.11⅜	.11⅝	.11¼	.12	.11¼	.11¾	.11⅛	.11¼	12,000
Bob Lee	1	.05	.05½	.05⅜	.05⅞	.05¼	.05½	.05⅜	.05⅝	.....	.05½	.04¾	.04⅞	3,000
Buckhorn	1	.06⅜	.07	.06¾	.06⅝	.....	.07	.06	.07	.06	.06¾	.05½	.06	12,934
Cadillac	1	.02¼	.02⅜	.02⅛	.....	.02¼	.02½	.02⅜	.02½	.02⅜	.02⅝	.02⅝	.02¾	50,000
Central C'n	1	.06⅜	.07	.06¾	.07⅛	.06¾	.07¼	.07⅝	.07¼	.06⅝	.07	.06⅜	.06⅞	16,000
Champion	1	.17	.01⅝	.06⅝	.07¼	.06¼	.07⅜	.07	.07⅝	.07¼	.07¾	.06	.07⅜	.....
Chicolo	1	.02⅜	.02¾	.02¼	.02½	.02¼	.02½	.02⅝	.02⅝	.02⅜	.02½	.02¼	.02¾	2,000
C. K. & N	1	.02½	.02⅜	.02½	.....	.02½	.02⅝	.02½	.02⅝	.02½	.02⅜	.02⅜	.02⅝	3,300
C. C.Col'bia	1	.10⅞	.11	.11	.11⅛	.11¼	.11⅜	.11⅝	.11¼	.11	.11⅛	.10	.1 .¼	83,000
C. C. G. Ext	1	.18¼	.18¾	.18⅛	.18⅞	.18	.18¼	.18⅛	.18⅜	.17	.17⅛	.15⅛	.16⅞	20,000
C. C. & Man	1	.10¾	.11	.11	.11¼	.11⅜	.11¾	.11⅜	.11¾	.11	.11⅛	.10⅜	.10⅝	40,500
Copper Mt.	1	.03⅜	.03½	.03¼	.03⅜	.03¼	.03⅜	.03¼	.03½	.03¼	.03¾	.03	.....	20,000
Creede&CC	1	.14	.....	.14	.14½	.14	.14½	.14	.....	.....	.....	.13	.14	2,000
C. C. Con	1	.12	.12⅜	.12	.12¾	.12	.12½	.12	.12¾	.11	.12	.10½	.11	15,000
Dante	1	.09⅞	.10	.10⅛	.10½	.10	.10½	.10¼	.10⅜	.09⅝	.09⅞	.08⅜	.09⅛	25,000
Des Moines	1	.06	.06¾	.06	.07	.06	.....	.....	.07	.06	.06½	.....	.06	1,000
Eclipse	1	.10	.10⅜	.10¾	.11	.10¾	.11	.10⅝	.10¾	.10	.10⅜	.09⅝	.10	54,000
Elkton Con	1	1.89	1.89½	1.83¾	1.84	1.76¾	1.77½	1.76¾	1.78	1.70	1.73	1.64	1.67½	76,486
El Paso G	1	.42½	.....	.42¾	.43½	.43	.43⅜	.42	.44	.42	.43½	.40	.41	19,063
Enterprise	1	.....	.20	.....	.20	.....	.20½	.....	.20	.....	.19	.....	.18	.....
F. Rawlings	1	.22	.....	.22	.25	.22	.25	.22	.....	.22	.23	.....	.....	2,000
Findley	1	.13	.....	.13½	.14	.13¾	.13⅞	.13¾	.13⅝	.13¾	.13⅞	.13⅜	.13¾	69,500
Garf. Conn.	1	.07⅛	.08	.07	.10	.07⅜	.....	.....	.....	.07⅜	.08¼	.07⅜	.08½	1,000
Golden Fl	1	.....	.24	.....	.24	.....	.24	.....	.25	.....	.25	.....	.24	.....
Gold Hill	1	.....	.03⅞	.03¾	.03⅞	.03⅝	.03¾	.03⅝	.03¾	.03½	.03⅝	.03	.03½	35,000
Gold Sov'n	1	.08	.08¼	.08¼	.08½	.08	.08¼	.08	.08¼	.07	.08	.07	.....	17,400
Hayden	1	.02	.02¼	.....	.02	.01¾	.02	.01¾	.02	.01¾	.02	.....	.02	10,000
Ida May	1	.27½	.28½	.....	.....	.....	.28	.27½	.28½	.....	.28	.....	.27	7,500
Indep'ndce	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ing. Con.	½	.17¼	.17½	.17	.17½	.16	.17⅜	.16½	.17	.15⅜	.15½	.14¼	.14⅜	20,000
Isabella	1	.91¼	.91½	.92½	.93	.89¾	.91	.89¾	.90	.85	.86⅜	.86½	.87¼	57,100
Jack Pot	1	.....	.....	.46	.50	.....	.49	.....	.49	.42	.46	.....	.46	4,500
Josephine	1	.02⅛	.02¼	.02¼	.02¼	.02¼	.02¼	.02	.02¼	.01½	.01⅝	.01½	.....	12,000
Key West	1	.03⅜	.03¾	.....	.....	.03¾	.03⅜	.03½	.03⅜	.....	.03⅜	.....	.03½	8,000
Lexington	1	.15¼	.15⅜	.15	.15¼	.15	.15⅜	.....	.15	.14	.14¾	.13½	.13⅜	30,500
Magnet R.	1	.03½	.04	.03⅝	.03¾	.03⅝	.03⅞	.03⅝	.03⅞	.03½	.03¾	.03⅜	.03⅝	16,000
Margaret	1	.02⅜	.03	.02⅝	.03	.02½	.02⅝	.02½	.03	.02	.03	.....	.....	5,500
Margery	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Matoa	1	.22	.24½	.....	.24½	.20	.25	.....	.....	.22	.25	.20	.22	2,000
Midway	1	.....	.....	.05¾	.06	.05¾	.06	.05	.05¾	.05	.05⅞	.04½	.05	4,000
M. J. T	1	.03⅜	.03¾	.03⅜	.03¾	.03⅜	.03¾	.03⅜	.03¾	.03½	.03¾	.03⅜	.03⅝	6,000
Mobile	1	.....	.03⅜	.03	.03¾	.....	.03⅝	.03⅜	.03¾	.03¼	.03⅝	.03⅜	.03⅝	8,000
Moll.Dwyer	1	.06	.06¼	.05¾	.06⅜	.06¼	.06¾	.06¼	.06⅜	.06¼	.06¾	.05½	.05¾	62,000
Mollie Gib.	1	.24	.....	.24	.....	.24	.25	.24	.25	.24	.25	.....	.25	1,000
Monarch	1	.10⅝	.11	.10⅜	.11	.10¾	.11	.10¾	.11	.10½	.10¾	.....	.....	2,000
Montreal	1	.....	.....	.....	.....	.05½	.06	.05½	.....	.....	.....	.04	.05	26,000
Moon-A'c'r	1	.....	.....	.30	.38	.32	.38	.32	.....	.30	.....	.30	.....	.....
Morning S	1	.04	.04½	.04½	.04⅝	.04	.04½	.04¼	.04⅜	.04½	.04¼	.03⅞	.04⅛	30,500
Mtn.Beauty	1	.08	.08¼	.08	.08¼	.08⅜	.08⅜	.08	.08¼	.07⅛	.07⅜	.....	.08	21,000
Mt. Rosa	1	.50	.75	.....	.....	.50	.....	.50	.....	.....	.....	.....	.....	.....
National	1	.07⅝	.08	.08	.08½	.08¾	.08⅞	.08⅝	.08¾	.08¼	.08½	.07½	.08	49,000
Nellie V	1	.....	.10½	.....	.10	.....	.10	.....	.10	.....	.10	.....	.....	.....
New Haven	1	.08	.08¼	.08	.08⅛	.08	.08¼	.....	.07⅝	.07⅜	.07½	.07	.07¼	47,000
Olive B'nch	1	.05⅛	.05¼	.05⅛	.05¾	.05¾	.....	.05½	.06	.05½	.05⅝	.05	.05¾	7,000
Oriole	1	.04½	.....	.04⅝	.05	.04½	.04⅞	.04½	.....	.04½	.05	.04	.....	7,000
Orphan	1	.18	.....	.18¼	.19	.18	.19	.18	.18½	.....	.19	.17½	.19	3,000
Pelican	1	.02½	.02⅝	.02½	.02⅜	.02⅜	.02½	.02½	.02⅝	.02⅝	.02⅝	.02¼	.02⅜	11,000
Pharmacist	1	.12¾	.13	.13	.13⅛	.13¼	.13⅜	.12⅝	.13	.12¾	.13	.12	.13¼	27,000
Pilgrim	1	.....	.13	.12	.12⅝	.12	.12⅝	.....	.13	.....	.12	.11¼	.12	.....
Pinnacle	1	.20	.....	.19¾	.20½	.19	.20¾	.19	.....	.17	.19	.16	.19	13,000
Portland	1	3.15	3.25	3.20	3.30	3.11	3.25	3.25	3.26	3.15	.....	3.20	3.25	7,500
Prince Alb.	1	.04½	.04¾	.04½	.04¾	.04½	.04⅝	.04⅝	.04⅞	.04½	.04⅝	.04¼	.04¾	40,400
Princess	1	.05¼	.05½	.05⅜	.05⅝	.05¼	.05¾	.05½	.....	.....	.05¾	.05¼	.05⅝	8,000
Progress	1	.06⅜	.06⅝	.06	.06¼	.06	.06¾	.05⅞	.06	.05⅞	.06	.05½	.05⅞	21,000
Pythias	1	.05¼	.05½	.05	.05½	.05¼	.05⅜	.05½	.05½	.05	.05¼	.04¾	.05½	11,000
Raven	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Republic	1	.06½	.06⅝	.06⅜	.06¾	.06¾	.06⅝	.06⅝	.07	.06⅜	.06¾	.06½	.06⅜	100,700
Rob't Burns	1	.05⅜	.....	.05	.05⅜	.05	.05½	.05	.05¼	.05⅛	.....	.05	.05⅛	17,000
Rose Maud	1	.....	.08¾	.03¼	.03½	.08	.08¼	.07¾	.....	.07	.07½	.07	.....	12,500
Rose Nicol	1	.11	.12½	.11	.12¼	.11⅜	.11¾	.11¼	.11½	.10	.11	.09½	.10	12,000
Silver Gold	1	.02	.02⅜	.02¼	.02½	.02	.02⅜	.02	.02¼	.02	.02¼	.....	.02¼	12,000
Specimen	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Theresa	1	.....	.08	.07	.07¼	.07	.07¼	.08	.08¼	.07	.....	.....	.06½	3,000
Trachyte	1	.06¾	.07	.06½	.06¾	.06½	.06⅜	.06⅜	.06⅞	.06¾	.06	.06¼	.06½	33,500
Uncle Sam	1	.04⅜	.04⅝	.02¼	.02⅜	.04¼	.04½	.04½	.04¾	.04	.04⅛	.03⅞	.04⅜	46,000
Union	1	.09½	.....	.09	.....	.09	.....	.09	.15	.....	.....	.....	.....	.....
Va. M	1	.11	.11¼	.11	.11½	.11	.11¼	.10¾	.11½	.10½	.11⅛	.09¼	.09¾	18,000
Vindicator	1	1.40	1.44	1.40	1.44	1.38	1.43	1.38	1.42	.....	1.42	.....	1.42	1,500
Work	1	.24½	.25½	.25	.26	.24½	.25	.23¼	.24½	.21	.23	.19½	.20	21,000
Zenobia	1	.....	.15	.....	.13	.....	.12½	.....	.12½	.....	.14½	.....	.15	.....

‡ Colorado Springs Mining Stock Exchange. Total sales, 1,745,283 shares.

MONTREAL, CANADA.*

NAME OF COMPANY.	Par val.	Week, Sept. 21. H.	L.	Sales.
Big Three	$1	.02½	.01¾	1,000
California	1	.10½	.08	2,500
Can. Gold Fields	0.10	.09	.07	.....
Decca	1	.....	.....	.....
Deer Trail Con	1	.04	.03½	.....
Evening Star	1	.08¼	.06	.....
Golden Star	1	.07¾	.05½	.....
Gold Hills Dev	1	.03	.01½	.....
Knob Hill	1	.55	.40	.....
Monte Christo	1	.03¼	.02½	.....
Montreal G. F	$1	.04	.02	1,500
Montreal-London	0.24	.12¾	.08½	20,580
Okenogan	.....	.....	.....	.....
Oregon	1	.16¾	.15½	9,500
Payne	1	1.03	.92	.....
Rambler-Cariboo	1	.35	.20	.....
Republic Con	1	.85	.75	1,600
Slocan-Sovereign	1	.14	.10	.....
Virtue	1	.67	.60	1,000
War Eagle	1	1.65	1.45	.....

* Montreal Stock Exchange. Total sales, 37,680 shares.

MEXICO. Sept. 14.

NAME OF COMPANY.	No. of shares.	Last div'd.	Prices. Op'g.	Cl'g.
Durango:				
Barradon y Cab	2,400	.....	$40	$30
Candelaria de Pan	1,300	.....	20	20
Capuzaya Guan.	2,400	.....	15	12
Restauradora	10,000	.....	10	20
Guanajuato:				
Angustias	2,400	5.00	100	115
Cinco Senores y An.	2,000	15.00	250	285
Guadalupe Hacie'a.	10,000	2.00	205	200
Trinidad, aviadora	2,000	.....	6	7
do. aviada	400	.....	10	10
Zona Minera de Poz	2,400	.....	6	8
Hidalgo:				
Amistad y Concord.	9,600	1.47	19	20
Arevalo	720	.....	200	200
Bartolome de Med	2,000	2.00	65	70
Carmen	1,100	7.75	200	150
Luz Ca Maravillas	800	.....	120	100
Pabellon	800	27.89	30	20
Hidalgo:				
Real del Monte	2,554	10.00	600	550
San Francisco Hc.	6,000	1.00	100	900
Soledad	960	5.00	270	230
Sorpresa	960	7.50	280	260
Union Hacienda	2,000	5.00	235	240
Mexico:				
Coronas	500	.....	75	75
Esperanza y An	3,000	10.00	1,200	1,100
Michoacan:				
Luz de Borda ava.	4,000	.....	12	16
S. Luis Potosi:				
Concep. y An	2,400	.....	270	260
Zacatecas:				
Asturiana y An	2,500	10.00	100	90
Cabezon	2,400	.....	15	10
C'delar de Pinos	2,500	.....	265	260
Palma de Somb	2,400	.....	40	30

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	Sept. 15. B.	Sept. 15. A.	Sept. 17. B.	Sept. 17. A.	Sept. 18. B.	Sept. 18. A.	Sept. 19. B.	Sept. 19. A.	Sept. 20. B.	Sept. 20. A.	Sept. 21. B.	Sept. 21. A.	Sales
Alamo	1	.....	.....	.12¾	.13	.....	.....	.....	.....	.....	.12⅜	.12⅞	.12½	.13	6,000
Anaconda	1	.46½	.....	.46½	.....	.47½	.49½	.....	.45½	.....	.45	.....	.44	.46	.....
Arg. J	5	.....	.....	.....	.26	.25¼	.....	.....	.....	.....	.....	.28¼	.....	.....	1,000
Dictator	1	.02	.02½	.....	.....	.02¼	.02½	.02¼	.02½	.02¼	.02½	.09	.02¾	.02	.02½	.....
Elkton	1	.....	.....	1.86½	.....	1.75	1.78	1.75¾	.....	1.74½	1.75	1.65	1.70	3,000	
Findley	1	.....	.....	.....	.....	.13⅞	.....	.....	.....	.13¾	.13⅞	.....	.....	.....	2,000
Ironclad	1	.05¼	.05½	.....	.....	.....	.....	.....	.....	.04¾	.....	.....	.....	.....	.....
Isabella	1	.91	.....	.90¼	.90¾	.90½	.....	.90	.91	.88	.88¾	.85	.86	3,000	
Magnet R'k	1	.03⅞	.04	.03⅝	.03⅞	.03⅝	.03⅞	.03⅝	.03⅞	.03⅝	.03½	.03⅜	.....	22,000	
New Haven	1	.....	.....	.08	.....	.....	.....	.....	.....	.....	.07	.07¼	.06⅝	.07	5,000
New Zeal'd.	1	.....	.....	.....	.....	.40	.50	.....	.....	.....	.....	.....	.55	.60	2,500
Pharmacist	1	.....	.....	.....	.....	.13¼	.13⅜	.....	.....	.....	.13	.13¼	.12¾	.13¼	5,000
Puritan	1	.008	.00⅜	.008	.....	.008	.00⅜	.....	.....	.008	.00⅜	.008	.008	.00½	83,000
Wire Gold	1	.....	.....	.....	.....	.....	.....	.....	.....	.00⅞	.....	.....	.....	.....	.....
Work	1	.....	.....	.....	.....	.21½	.....	.23½	.....	.23	.24	.....	.....	.....	5,000

‡ Official Quotations Denver Stock Exchange. Total sales, 112,500 shares.

PARIS. Sept. 7.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Opening.	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs	27,000,000	2,000	85.00	1 790.00	1,880.00
" " Firminy	"	" "	3,000,000	500	175.00	3,825.00	3,850.00
" " Fives-Lille	"	" "	12,000,000	500	35.00	490.00	490.00
" " Huta-Bank	Russia	Iron & steel	.....	500	.....	4,675.00	4,600.00
" " la Marine	France	Steel mfrs	20,000,000	500	60.00	1,710.00	1,735.00
Anzin	"	Coal	.....	.....	260.00	6,965.00	6,990.00
Boleo	Lower Cal	Copper	.....	500	176.00	2,685.00	2,690.00
Briansk	Russia	Coal & iron	.....	500	.....	840.00	820.00
Champ d'Or	S. Africa	Gold	3,375,000	25	3.75	39.00	39.50
Courrieres	France	Coal	600,000	300	90.00	3,024.00	3,020.00
Dombrowa	Russia	"	.....	500	12.50	1,020.00	990.00
Donetz	"	Steel	.....	.....	.....	880.00	880.00
Dynamite Centrale	France	Explosives	.....	500	22.50	425.00	415.00
Escombrera-Bleyberg	Spain	Lead	.....	500	35.00	1,270.00	1,260.00
Fraser River	Brit. Col'mb.	Gold	250,000	25	.....	8.00	11.00
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	138.50	135.00
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	578.00	562.50
Maifidano	Italy	Zinc	12,500,000	500	50.00	1,185.00	1,180.00
Metaux, Cie. Fran. de	France	Metal d'lers	25,000,000	500	30.00	465.50	474.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,175.00	1,190.00
Naphthe Baku	Russia	Petroleum	.....	.....	.....	817.50	810.00
Napthe Nobel	"	"	.....	.....	.....	650.00	635.00
" " parts	"	"	.....	.....	.....	12,900.00	12,600.00
Nickel	N. Caled'nia	Nickel	10,000,000	250	10.00	532.00	531.00
Penarroya	Spain	Coal, etc	.....	500	95.00	2,780.00	2,780.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25	.....	3.50	4.00
Salines de l'Est	France	Salt	.....	500	5.00	210.00	225.00
Salines du Midi	"	"	.....	500	25.00	1,000.00	870.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	36.00	742.50	735.00

LONDON. Sept. 14.

NAME OF COMPANY.	Country.	Authorized capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
			£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska Goldfields	Alaska	£300,000	1 0 0	2 1	Mar., 1899	16 3	18 9
Alaska-Mexican, g	"	200,000	1 0 0	4.8	Aug., 1900	18 9	1 1 3
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	4 17 6	5 2 6
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2	Apr., 1900	9 3 9	9 6 3
De Lamar, g., s	Idaho	400,000	1 0 0	0 6	May, 1900	2 6	3 6
El Oro	Mexico	1,000,000	1 0 0	1 0	Aug., 1900	1 3 9	1 6 3
Golden Gate, g	California	80,000	1 0 0	.....	.....	1 0	2 0
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Jan., 1900	12 6	15 0
Hall Sm. & Mg., c., s	British Col	250,000	1 0 0	1 0	May, 1899	1 0	1 6
Le Roi, g	"	1,000,000	5 0 0	5 0	Nov., 1899	7 13 9	7 16 3
Lillie, g	Colorado	250,000	1 0 0	2½	Apr., 1900	8 9	11 3
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	3 0	3 6
Mountain Copper	California	1,250,000	5 0 0	11 0	Apr., 1900	6 5 0	6 10 0
Newfoundland, c	Newfoundland	250,000	1 0 0	.....	.....	2 6	5 0
Palmarejo & Mexican, g	Mexico	700,000	1 0 0	.....	.....	1 0	1 6
Stratton's Independence	Colorado	1,100,000	1 0 0	2 0	June, 1900	2 17 6	3 6 0
Copiapo, c	Chile	200,000	2 0 0	4 0	July, 1900	4 0 0	4 5 0
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1899	1 13 9	1 16 3
St. John del Rey, g	Brazil	600,000	1 0 0	rts.	July, 1900	1 5 0	1 6 3
Utah Con.,g.(Highl'nd Boy)	Utah	300,000	1 0 0	rts.	Mar., 1898	6 5 0	6 10 0
Velvet, g	British Col'mbia	100,000	1 0 0	.....	.....	1 0 0	1 2 6
Ymir, g	"	200,000	1 0 0	1 0	Nov., 1899	1 10 9	1 12 6
British Am. Corp	"	1,500,000	1 0 0	2 0	Mar., 1900	16 3	16 9
Linares, l	Spain	45,000	3 0 0	15 0	" "	9 10 0	10 10 0
Mason & Barry, c., sul	Portugal	420,000	2 0 0	10 0	May, 1900	3 17 6	4 2 6
Rio Tinto, c	Spain	1,625,000	5 0 0	45 0	" "	59 7 6	59 12 6
" " pref	"	1,625,000	5 0 0	2 6	" "	6 2 6	6 5 0
Tharsis, c	"	1,250,000	2 0 0	15 0	Apr., 1900	8 17 6	9 2 6
Assoc. Gold Mines	W. Australia	500,000	1 0 0	1 6	Jan., 1900	3 17 6	4 0 0
Broken Hill Prop., s	N. S. Wales	384,000	8	0 4 6	Aug., 1900	2 8 0	2 9 0
Great Boulder Prop	W. Australia	175,000	2	0 6	Aug., 1900	1 12 3	1 12 9
Hannan's Brownhill, g	"	140,000	1 0	0 7 6	Oct., 1900	6 6 3	6 8 9
Ivanhoe Gold Corp	"	1,000,000	5 0	0 5 0	July, 1900	10 11 3	10 13 9
Kalgurlie, g	"	120,000	1 0	0 rts.	Oct., 1899	5 13 9	5 16 3
Lake View Consols, g	"	250,000	1 0	0 5 0	Aug., 1900	13 16 3	13 16 3
Mt. Lyell M. & R., l., c	Tasmania	900,000	3 0	0 2 0	Oct., 1900	7 12 6	7 17 6
*Mt. Morgan, g	Queensland	1,000,000	1 0	0 7	Sept., 1900	5 1 3	5 3 9
*Waihi, g	New Zealand	320,000	1 0	0 2 6	Sept., 1900	10 7 6	13 12 6
*Champion Reef, g	Colar Fields	220,000	10	0 4 0	Sept., 1900	5 16 3	5 18 9
Mysore Gold, g	"	256,300	10	0 4 0	July, 1900	6 2 6	6 5 0
Nundyroog, g	"	242,000	1 0	0 2 0	" "	3 5 0	3 7 6
Ooregum, g	"	145,000	1 0	0 3 6	Aug., 1900	3 15 0	3 17 6
" pref. g	"	120,000	1 0	0 3 6	" "	4 16 3	4 18 6
British S. Africa, chartered	So. Africa	5,000,000	1 0	0 rts.	May, 1899	3 10 0	3 12 6
Cape Copper, c	"	600,000	1 0	0 5 0	July, 1900	6 1 3	6 5 9
" pref	"	150,000	2 0	0 5 0	" "	5 10 0	5 15 0
City & Suburban (New), g	Transvaal	1,360,000	4 0	0 8 0	Aug., 1899	5 15 0	5 17 6
Con. Deep Level, g	"	200,000	1 0	0 x all	June, 1898	1 2 6	1 7 6
Crown Reef, g	"	120,000	1 0	0 18 0	Nov., 1899	15 15 0	16 0 0
De Beers Con., d	Cape Colony	3,950,000	5 0	0 £1	Sept., 1899	28 5 0	28 10 0
Ferreira, g	Transvaal	90,000	1 0	0 30 0	Aug., 1899	22 5 0	22 15 0
Geldenhuis Deep, g	"	350,000	1 0	0 8 0	" "	10 7 6	10 12 6
Geldenhuis Est., g	"	200,000	1 0	0 10 6	" "	7 0 0	7 2 6
Henry Nourse, g	"	125,000	1 0	0 10 0	Apr., 1900	8 17 6	9 0 0
Jagersfontein, d	Orange Fr. St.	1,000,000	5 0	0 6 0	Nov., 1899	16 7 6	16 12 6
Johannesburg Con. Invet.	So. Africa	2,750,000	1 0	0 2 0	Aug., 1899	2 2 6	2 5 0
Jubilee, g	Transvaal	50,000	1 0	0 5 0	Sept., 1899	6 5 0	6 10 0
Langlaagte Estate, g	"	470,000	1 0	0 3 0	Aug., 1899	3 11 3	3 13 9
May Con., g	"	290,000	1 0	0 6 0	July, 1899	4 13 9	4 16 3
Meyer & Charlton, g	"	100,000	1 0	0 8 0	June, 1899	5 10 0	5 15 0
Namaqua, c	Cape Colony

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Author-ized Capital Stock.	Shares Issu'd No.	Par Val	Dividends. Paid, 1900.	Total to Date.	Latest. Date.	Amt.
1	Acacia, g.	Colo..	$1,500,000	1,500,000	$1	$30,000	$30,000	Sept.. 1900	.01
2	Alma Con., q.	Cal ..	500,000	100,000	5	30,000	225,000	April. 1900	.15
3	Alabama Coal & Iron, pf	Ala...	2,500,000	25,000	100	131,250	131,250	Aug.. 1900	1.75
4	Alaska-Mexican, g.	Alask	1,000,000	180,000	5	54,000	483,031	July.. 1900	.10
5	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	225,000	4,445,000	July.. 1900	.37½
6	Alice, g. s.	Mont.	10,000,000	400,000	25	.....	1,075,000	April. 1898	.05
7	Alliance, g.	Colo..	500,000	450,000	1	.....	31,500	Dec.. 1899	.07
8	Amalgamated, c.	Mont.	75,000,000	750,000	100	4,800,000	6,000,000	July.. 1900	2.00
9	Amanda, g.	Colo..	1,000,000	1,000,000	1	10,000	10,000	June. 1900	.01
10	Amazon, g.	Colo..	600,000	600,000	1	102,000	121,882	May.. 1900	.10
11	American Coal.	Md..	1,500,000	60,000	25	225,000	982,000	Sept.. 1900	1.00
12	American Gold, g. s. c. l.	Colo..	3,000,000	300,000	10	.....	446,000	Dec.. 1899	.04
13	Amer. Sm & Ref., pref.	U. S..	32,500,000	325,000	100	2,113,803	2,682,553	Oct.. 1900	1.75
14	Am. Steel & Wire, pf.	U. S..	40,000,000	400,000	100	2,800,000	5,600,000	Oct.. 1900	1.75
15	Am. Steel & Wire, com.	U. S..	50,000,000	500,000	100	1,750,000	1,750,000	July.. 1900	1.75
16	Am. Zinc, Lead & Sm.	Mo...	2,500,000	60,000	25	60,000	180,000	Jan.. 1900	1.00
17	Anaconda Copper.	Mont.	30,000,000	1,200,000	25	2,400,000	14,550,000	April. 1900	2.00
18	Anchoria-Leland, g.	Colo..	600,000	600,000	1	.....	198,000	April. 1899	.03
19	Anglo-Mexican, g.	Mex..	2,001,625	400,230	5	.....	1,825,048	Dec.. 1899	.24
20	Apollo Con., g.	Alask	1,000,000	100,000	10	70,000	210,000	Jan.. 1900	.07
21	Appie Ellen, g.	Colo.	600,000	600,000	1	.....	25,000	Aug.. 1898	.01
22	April Fool, g.	Nev..	500,000	500,000	1	.....	16,000	Oct.. 1899	.01
23	Argentum-Juniata, g.	Colo..	1,300,000	650,000	2	.....	156,000	Oct.. 1895	.03
24	Argonaut, g.	Cal ..	2,000,000	200,000	10	70,000	490,000	May.. 1900	.05
25	Arizona Copper.	Ariz..	3,190,550	.....	...	576,429	1,464,848	Sept.. 1900	.84
26	Associated, g.	Colo..	1,250,000	1,250,000	1	.....	84,000	Feb.. 1899	.01
27	Atlantic, c.	Mich.	1,000,000	40,000	25	80,000	860,000	Feb.. 1900	2.00
28	Bald Butte, g. s.	Mont.	250,000	250,000	1	67,500	837,148	Aug.. 1900	.03
29	Bankok Cora Belle, s.	Colo..	600,000	600,000	1	.....	107,510	July.. 1896	.01
30	Big Seven, g.	Cal ..	100,000	100,000	1	.....	6,000	April 1898	.03
31	Big Six, g. s.	Colo..	500,000	500,000	1	.....	15,000	May.. 1898	.00½
32	Boston-Aurora, pref.	Mo...	800,000	32,000	25	37,120	66,160	May.. 1900	.50
33	Boston & California.	Cal ..	600,000	600,000	1	.....	72,000	June. 1899	.06
34	Boston & Colo. Smelting	Colo..	750,000	15,000	50	33,750	303,750	July.. 1900	.75
35	Boston Duenweg, z.	Mo...	1,000,000	40,000	10	24,000	56,900	June. 1900	.10
36	Boston Get There, z.	Mo...	250,000	22,500	10	9,000	20,250	April. 1900	.10
37	Boston-Little Circle, z.	Mo-K	1,000,000	100,000	10	12,500	87,500	Mar.. 1900	.12½
38	Boston & Mont. Con.	Mont.	3,750,000	150,000	25	4,200,000	18,500,000	Aug.. 1900	10.00
39	Boston Providence, z., pf	Mo...	150,000	15,000	10	6,000	17,242	Aug.. 1900	.05
40	Boston, q.	Cal..	1,000,000	100,000	10	10,000	20,000	Jan.. 1900	.10
41	Boston Springfield, z.	Mo...	500,000	20,000	25	15,000	15,000	June. 1900	.25
42	Boston Sunflower, z.	Mo...	150,000	15,000	10	.....	4,500	Oct.. 1899	.30
43	Breece, i.	Colo..	5,000,000	200,000	25	20,000	90,000	Sept.. 1900	.05
44	Buffalo Hump, g.	Idaho	3,000,000	300,000	10	245,000	245,000	Oct... 1900	.10
45	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	60,000	2,498,000	June. 1900	.10
46	Bunker Hill & Sullivan.	Idaho	3,000,000	300,000	10	189,000	990,000	Sept.. 1900	.07
47	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	5,000,000	71,850,000	Sept.. 1900	20.00
48	Cariboo-McKinney, g.	B. Col	1,250,000	1,250,000	1	68,750	459,337	Aug.. 1900	.01½
49	Centen l-Eureka, g. s. l. c.	Utah.	5,000,000	100,000	25	217,700	2,367,700	July.. 1900	1.00
50	Center Creek, l. z.	Mo...	1,000,000	100,000	10	10,000	10,000	Feb.. 1900	.10
51	Central Lead, l.	Mo...	1,000,000	10,000	100	45,000	187,000	Sept.. 1900	.50
52	Champion, g. s.	Cal...	340,000	34,000	10	.....	321,700	Nov.. 1899	.25
53	Cloverdale, z.	Mo...	1,000,000	100,000	10	50,000	50,000	July.. 1900	.20
54	Colonial, l.	Mo...	1,000,000	1,000,000	1	.....	10,000	Aug.. 1899	.01
55	Colorado Smelting	Mont.	1,000,000	100,000	10	.....	1,945,000	Jan.. 1899	1.00
56	Columbia, l.	Mo...	500,000	50,000	10	12,125	12,125	June. 1900	.05
57	Commodore, g.	Colo..	1,200,000	1,200,000	1	.....	432,000	Jan.. 1899	.04
58	Commonwealth, z., pref.	Mo ..	500,000	100,000	5	30,000	50,000	June. 1900	.05
59	Consolidated Gold Mines	Colo..	1,000,000	1 000,000	1	80,000	90,000	Sept.. 1900	.01
60	Consolidation Coal	Md...	10,250,000	102,500	100	205,000	5,921,650	Feb.. 1900	2.00
61	Con. Mercer Gold Mines.	Utah.	5,000,000	1,000,000	5	115,000	1,481,000	Sept.. 1900	.20
62	Cons. Zinc & Lead, pf.	Mo...	400,000	400,000	1	8,000	8,000	Jan.. 1900	.20
63	Cordell, z. l.	Mo...	300,000	60,000	5	27,000	30,000	Sept.. 1900	.05
64	Cripple Creek Con., g.	Colo..	2,000,000	2,000,000	1	160,000	160,000	Mar.. 1900	.08
65	Cresus, g.	Cal...	1,000,000	190,000	5	45,600	93,100	June. 1900	.06
66	Crowned King, g. s. l.	Ariz .	6,000,000	600,000	10	.....	242,760	May.. 1899	.02
67	Dalton & Lack, g. s. l.	Utah.	2,500,000	2,500,000	1	.....	87,500	Mar.. 1896	.00½
68	Daly, g.	Utah.	3,000,000	150,000	20	.....	2,925,000	Mar.. 1897	.25
69	Daly West, g. s.	Utah.	3,000,000	150,000	20	375,000	495,000	Sept.. 1900	.25
70	Deadwood-Terra, g.	S. D..	5,000,000	200,000	25	.....	1,350,000	May.. 1898	.15
71	Deer Trail Con., g.	Wash	3,000,000	3,000,000	1	.....	55,000	Dec.. 1899	.00½
72	De Lamar, g. s.	Idaho	2,000,000	400,000	5	48,000	2,394,000	May . 1900	.12
73	Della S., g.	Colo.	1,000,000	1,000,000	1	.....	60,000	Jan .. 1897	.01
74	Denver & Cripple C'k, g.	Colo..	1,000,000	1,000,000	1	10,625	10,625	June. 1900	.01⅝
75	Desloge Con., l.	Mo..	1,000,000	100,000	10	20,000	70,000	May.. 1900	.20
76	Dixie, g.	Utah.	125,000	125,000	1	10,000	10,000	April. 1900	.02
77	Doe Run, l.	Mo...	500,000	5,000	100	22,500	112,500	Sept.. 1900	.50
78	Ducktown, c. i. sul. (ord)	Tenn.	374,000	7,480	50	.....	95,744	Dec.. 1899	9.60
79	Ducktown (founder).	Tenn.	1,000	200	5	.....	41,160	Dec.. 1899	162.00
80	Dutch, g.	Cal ..	1,500,000	130,000	10	.....	39,000	Feb.. 1898	.05
81	Eldorado, g.	Cal...	1,000,000	100,000	10	.....	10,000	July.. 1899	.10
82	Elkhorn, New, s. l.	Colo..	437,500	87,500	5	.....	1,325,000	June. 1898	.48
83	Elkton Con., g.	Colo..	3,000,000	2,500,000	1	233,750	948,961	Sept.. 1900	.03
84	El Paso, g. s.	Colo..	900,000	900,000	1	.....	12,393	Jan.. 1898	.01
85	Empire State-Idaho.	Idaho	1,000,000	98,514	10	265,987	584,025	Sept.. 1900	.30
86	Enterprise, s. l.	Colo..	500,000	500,000	1	.....	900,000	Sept.. 1898	.05
87	Fanny Rawlings, g. s.	Colo..	1,000,000	1,000,000	1	.....	20,600	Aug.. 1899	.01
88	Favorite, g.	Colo..	1,200,000	1,200,000	1	48,000	48,000	April. 1900	.04
89	Federal Steel, pf.	U. S..	100000,000	532,610	100	4,127,727	5,725,587	July.. 1900	1.75
90	Federal Steel, com.	U. S..	100000,000	464,843	100	1,743,161	1,743,161	Mar.. 1900	2.50
91	Fern, g.	B.Col	200,000	200,000	1	.....	10,000	Jan .. 1898	.05
92	Ferris-Haggarty, c. g. s.	Wyo.	1,000,000	1,000,000	1	.....	5,000	Feb .. 1899	.00½
93	Florence, s.	Mont.	2,500,000	440,000	5	22,000	252,000	April. 1900	.05
94	Frisco Con., l. s.	Idaho	2,500,000	500,000	5	.....	920,000	Nov.. 1899	.25
95	Galena, s. l. g.	Utah.	1,000,000	100,000	10	.....	71,000	Sept.. 1897	.05
96	Garfield Con., g.	Colo..	1,200,000	1,200,000	1	.....	34,000	May.. 1899	.01
97	Gemini.	Utah.	500,000	5,000	100	50,000	700,000	Aug.. 1900	10.00
98	Geyser-Marion, g.	Utah.	1,500,000	300,000	5	.....	96,000	Sept.. 1898	.02
99	Gold Belt, g.	Colo..	1,250,000	1,250,000	1	112,500	112,500	Aug.. 1900	.09
100	Gold Coin of Victor, g.	Colo..	1,000,000	1,000,000	1	180,000	540,000	Sept.. 1900	.02
101	Gold Deposit, g.	Colo..	500,000	500,000	1	10,000	10,000	Mar.. 1900	.02
102	Gold & Globe, g.	Colo .	750,000	750,000	1	.....	51,625	July.. 1898	.00½
103	Gold King, g.	Colo..	1,000,000	936,850	1	84,316	149,896	July.. 1900	.03
104	Gold Sovereign, g.	Colo..	3,000,000	3,000,000	1	.....	.....	.....	.....
105	Golden Cycle, g.	Colo..	1,000,000	200,000	5	90,000	348,500	Sept.. 1900	.05
106	Golden Eagle, g.	Colo..	500,000	500,000	1	5,000	25,000	June. 1900	.01
107	Golden Fleece, g. s.	Colo..	600,000	600,000	1	.....	569,480	Feb.. 1897	.01
108	Golden Reward, g.	S. D..	1,000,000	100,000	10	.....	155,000	Feb.. 1898	.15
109	Golden Star, g.	Ont..	1,200,000	1,200,000	1	.....	45,500	July.. 1899	.00½
110	Grafton, g.	Colo..	1,000,000	1,000,000	1	.....	10,000	Oct... 1899	.01
111	Grand Central, g.	Utah.	250,000	250,000	1	.....	666,250	Sept.. 1899	.24
112	Grand Gulch.	Ariz..	250,000	240,000	1	9,600	9,600	April. 1900	.01
113	Granite, g.	Colo..	1,000,000	1,000,000	1	30,000	30,000	June. 1900	.05
114	Grass Valley Expl.	Cal...	100,000	30,000	2	37,500	67,500	May.. 1900	.25
115	Greater Gold Belt, g.	Col ..	5,000,000	3,800,000	1	76,000	76,000	June. 1900	.02
116	Gwin, g.	Cal .	1,000,000	100,000	10	15,000	96,500	Aug.. 1900	.05
117	Hall Mg. & Sm.	B. Col	1,250,000	250,000	5	.....	120,000	May.. 1899	.24
118	Hecla, s.	Idaho	1,000,000	1,000,000	1	20,000	20,000	July.. 1900	.02
119	Hecla Con.	Mont	1,500,000	30,000	50	.....	2,190,000	Dec.. 1898	.50
120	Hidden Treasure, g.	Cal...	500,000	360,000	1	.....	3,600	July.. 1899	.01
121	Holy Terror, g.	S. D..	500,000	500,000	1	5,000	172,000	Jan.. 1900	.01
122	Home, g.	Colo..	$50,000	50,000	$1	$100,000	$100,000	July.. 1900	.50
123	Homestake, g.	S. D.	21,000,000	210,000	100	945,000	9,088,750	Sept.. 1900	.50
124	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	20,000	5,279,000	June. 1900	.05
125	Idaho, g.	Idaho	1,000,000	1,000,000	1	8,188	8,188	April. 1900	.01
126	Idaho, s. l.	B.Col	500,000	500,000	1	.....	292,000	Jan .. 1899	.05
127	Independence Con.	Colo..	2,500,000	2,500,000	1	100,000	100,000	Aug.. 1900	.04
128	International, z.	Mo...	1,000,000	1,000,000	1	26,427	26,427	July . 1900	.01
129	Iowa, g. s. l.	Colo..	1,666,667	1,666,667	1	39,334	136,834	June. 1900	.00⅔
130	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10	.....	507,500	April. 1898	.02
131	Iron Silver, s l.	Colo..	10,000,000	500,000	20	.....	2,500,000	April. 1899	.20
132	Isabella, g.	Colo..	2,250,000	2,250,000	1	157,500	697,500	Sept.. 1900	.01
133	Jack Pot, g.	Colo..	1,250,000	1,250,000	1	.....	75,000	Dec.. 1899	.06
134	Jamison, g.	Cal ..	3,900,000	390,000	10	.....	50,700	April. 1899	.10
135	Keystone, g.	Colo..	1,500,000	1,500,000	1	.....	35,000	Mar.. 1894	.01½
136	Klondike Bonanza, Ltd.	Klond	750,000	52,750	5	.....	12,000	Aug .. 1899	.24
137	La Fortuna, g.	Ariz .	250,000	250,000	1	220,000	882,500	Sept.. 1900	.10
138	Lake City, g	Colo .	50,000	50,000	1	3,875	3,875	May . 1900	.01
139	Lake Superior Iron.	Mich.	2,100,000	84,000	25	.....	2,132,000	Feb .. 1899	1.00
140	Last Chance, s. l.	B. Col	500,000	500,000	1	.....	45,000	Apr .. 1899	.05
141	Last Dollar, g.	Colo..	1,500,000	1,500,000	1	60,000	90,000	July.. 1900	.02
142	Le Roi, g.	B.Col	5,000,000	200,000	5	.....	1,305,000	Nov .. 1899	1.20
143	Lillie, g.	Colo..	1,250,000	250,000	5	45,117	349,300	April. 1900	.05
144	Little Tiger, g.	Cal...	500,000	500,000	1	15,000	47,500	Feb.. 1900	.01½
145	Madison, g.	Colo..	1,250,000	1,050,000	1	35,000	35,000	June. 1900	.03½
146	Magnolia.	Colo..	1,250,000	1,100,000	1	187,500	187,000	July.. 1900	.17
147	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	160,000	1,770,000	Sept.. 1900	.05
148	Marion Con., g.	Colo..	5,000,000	500,000	10	.....	300,000	May.. 1899	.01
149	Mary McKinney, g.	Colo..	1,000,000	1,000,000	1	120,000	150,000	July.. 1900	.03
150	Maryland Coal, pf.	Md...	1,885,005	18,850	100	37,700	584,319	June. 1900	2.00
151	Matoa, g.	Colo..	1,000,000	1,000,000	1	.....	25,000	Dec.. 1898	.02½
152	Midget, g.	Colo..	1,000,000	1,000,000	1	15,000	15,000	May.. 1900	.15
153	Missouri Zinc Fields, pf.	Mo...	400,000	16,000	25	16,573	31,885	April. 1900	.16
154	Modoc, g. s.	Colo..	500,000	500,000	1	45,000	190,000	Sept.. 1900	.01
155	Mollie Gibson, s. l.	Colo..	5,000,000	1,000,000	5	.....	4,080,000	Jan.. 1895	.05
156	Monarch, g.	Colo..	1,000,000	1,000,000	1	120,000	120,000	April. 1900	.12
157	Montana Coal & Coke.	Mont.	5,000,000	200,000	25	60,000	60,000	April. 1900	.30
158	Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5	.....	453,700	April. 1899	.12
159	Montana Ore Purchas'g.	Mont.	2,500,000	80,000	25	160,000	1,520,000	May.. 1900	1.00
160	Montreal, g.	Colo..	1,000,000	1,000,000	1	.....	7,500	Nov .. 1898	.00¾
161	Monument, g.	Colo..	300,000	300,000	1	.....	18,124	Nov .. 1899	.01
162	Moon-Anchor Con., g.	Colo..	1,750,000	600,000	1	.....	261,000	Nov.. 1898	.07½
163	Moose, g.	Colo..	600,000	600,000	1	.....	186,000	Feb.. 1896	.01
164	Morning Star Drift, g.	Cal...	240,000	2,400	100	.....	847,200	Nov.. 1899	10.00
165	Morse, g.	Colo..	1,250,000	1,250,000	1	.....	215,650	May.. 1899	.12
166	Mountain Copper.	Cal ..	6,250,000	250,000	25	660,000	1,833,750	April. 1900	2.64
167	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1	.....	75,000	Dec.. 1899	.04
168	Mt. Shasta, g.	Cal...	100,000	20,000	5	.....	6,000	May.. 1899	.30
169	Moulton, g.	Mont.	2,000,000	400,000	5	.....	500,000	Oct... 1899	.05
170	Napa Con., q.	Cal ..	700,000	100,000	7	50,000	1,090,000	July.. 1900	.10
171	National Lead, com.	U. S..	15,000,000	149,054	100	149,054	1,341,486	Mar.. 1900	1.00
172	National Lead, pf.	U. S .	15,000,000	149,040	100	782,460	10,318,460	Sept . 1900	1.75
173	New Central Coal.	Md...	1,000,000	50,600	20	20,000	490,000	April. 1900	.40
174	New Idria, q.	Cal...	500,000	100,000	5	60,000	230,000	July.. 1900	.20
175	N. J. & Mo., z.	Mo...	250,000	2,500	100	11,000	11,000	June.. 1900	2.00
176	New York, Zinc.	Kas..	700,000	28,000	25	.....	6,500	Oct... 1899	.25
177	N. Y. & Hon Rosario, s. g.	U. A..	1,500,000	150,000	10	150,000	1,312,000	Sept.. 1900	.10
178	North Star Mines.	Cal ..	5,000,000	250,000	10	.....	50,000	Nov.. 1899	.20
179	Nugget, g.	Colo..	625,000	1,250 000	½	.....	35,000	Aug.. 1898	.00½
180	Okanogan, g.	Wash	62,500	1,250,000	5	.....	3,125	Oct... 1899	.00¼
181	Old Colony Zinc & Sm.	Mo...	1,100,000	69,909	10	50,809	50,809	July.. 1900	.25
182	Omega, g.	Colo..	1,500,000	1,212,550	1	18,188	18,188	June. 1900	.01½
183	Ontario, s. l.	Utah.	15,000,000	150,000	100	90,000	13,662,500	April. 1900	.30
184	Orphan Belle, g.	Colo.,	1,000,000	1,000,000	1	.....	197,899	Dec.. 1899	.09
185	Original Empire, g.	Cal..	5,000,000	50,000	100	.....	530,000	Oct... 1899	1.00
186	Osceola, c.	Mich.	2,500,000	93,000	25	279,000	3,359,500	June. 1900	3.00
187	Parrot, c.	Mont.	2,300,000	229,850	10	1,034,325	4,049,050	July.. 1900	1.50
188	Pennsylvania Coal.	Pa....	5,000,000	190,000	50	.....	4,050,000	May.. 1899	8.00
189	Pennsylvania Con, g.	Cal...	5,150,000	51,500	100	25,750	161,325	May.. 1900	.10
190	Petro, g.	Utah.	1,000,000	200,000	5	.....	32,000	Oct... 1899	.02½
191	Pharmacist Con., g.	Colo..	1,500,000	1,500,000	1	.....	84,000	Jan.. 1898	.01
192	Pioneer, g.	Cal...	1,000,000	100,000	10	.....	62,500	Mar.. 1899	.12½
193	Plumas Eureka, g.	Cal ..	1,406,250	140,625	10	84,375	2,797,544	April. 1900	.60
194	Portland, g.	Colo..	3,000,000	3,000,000	1	570,000	3,127,080	July.. 1900	.06
195	Princess, g.	Colo..	1,000,000	1,000,000	1	.....	45,000	May . 1896	.01
196	Queen Bess Propr., s. l.	B.Col	500,000	100,000	5	.....	25,000	July.. 1899	.12½
197	Quicksilver, pref.	Cal...	4,300,000	43,000	100	21,500	1,866,911	July.. 1900	.50
198	Quincy, c.	Mich.	2,500,000	100,000	25	900,000	11,970,000	Aug.. 1900	4.00
199	Rambler—Cariboo, s. l.	B.Col	1,250,000	1,250,000	1	33,750	105,000	Mar.. 1900	.01
200	Reco, s. l.	B.Col	1,000,000	1,000,000	1	.....	297,500	Jan.. 1898	.10
201	Republic Con., g.	Wash	3,500,000	3 500,000	1	105,000	382,500	Mar.. 1900	.01
202	Republic Iron & Steel, pf	U. S..	25,000,000	212,570	100	1,115,991	1,955,986	Oct.. 1900	1.75
203	Reward, g.	Cal ..	1,000,000	100,000	10	.....	20,000	Aug . 1899	.20
204	Russell-Irwin, z.	Mo...	250,000	25,000	10	.....	15,000	Oct... 1899	.10
205	Sacramento, g.	Utah.	5,000,000	1,000,000	5	.....	138,000	Oct... 1899	.00½
206	St. Joseph, l.	Mo...	3,000,000	300,000	10	112,500	3,000,500	Sept.. 1900	.50
207	Santa Rita, g.	Colo..	1,000,000	1,000,000	1	4,000	4,000	July.. 1900	.02
208	Seventy-Six, g. s.	Colo..	1,000,000	200,000	5	.....	2,950	Mar.. 1898	.01
209	Santa Rosalia, g. s.	Cal...	100,000	100,000	1	.....	135,000	Sept.. 1899	.05
210	Silver King, g. s. l.	Utah.	300,000	150,000	20	675,000	3,125,000	Sept.. 1900	.50
211	Small Hopes, s.	Colo..	5,000 000	250,000	20	.....	3,325,000	Feb.. 1899	.10
212	Smuggler, s. l. z.	Colo..	1,000,000	1,600,000	1	420,000	1,605,000	Sept.. 1900	.03
213	South Eureka, g.	Cal ..	1,500,000	300,000	5	.....	12,000	May.. 1898	.04
214	South Swansea, s. l.	Utah.	150,000	150,000	1	.....	165,000	Oct... 1899	.05
215	Southern Boy, g.	Colo..	1,250,000	875,000	7	17,500	17,500	May . 1900	.02
216	Squaw Mountain, g.	Colo..	2,000,000	2,000,000	1	.....	10,000	Nov.. 1899	.00½
217	Standard Con., g. s.	Cal...	2,000,000	200,000	10	60,000	3,959,226	Aug.. 1900	.10
218	Standard, g.	Idaho	500,000	500,000	1	.....	1,745,000	April. 1899	.06
219	Stratton's Independ'ce.	Colo..	5,500,000	1,000,000	5	1,280,000	2,240,000	Aug.. 1900	.32
220	Swansea, s. l.	Utah.	500,000	100,000	5	55,000	256,500	Sept.. 1900	.05
221	Tamarack, c.	Mich.	1,500,000	60,000	25	300,000	6,570,000	June. 1900	7.00
222	Tomboy, g.	Colo..	1,500,000	300,000	5	72,000	884,000	June. 1900	.24
223	Touraine, g.	Colo..	1,250,000	1,250,000	1	87,500	87,500	April. 1900	.07
224	Union, g.	Colo..	1,250,000	1,250,000	1	312,500	395,244	Sept.. 1900	.25
225	Union, z. l.	Kas..	500,000	500,000	1	15,000	15,000	Aug.. 1900	.01
226	United, z. l., pref.	Mo...	6,000,000	240,000	25	19,226	21,892	July.. 1900	.50
227	United Verde, c.	Ariz..	3,000,000	300,000	10	1,425,000	2,287,500	Aug.. 1900	.75
228	Utah, g.	Utah.	1,000,000	100,000	10	.....	179,000	Jan.. 1899	.02
229	Victor, g.	Colo..	1,000,000	200,000	5	.....	1,155,000	Dec.. 1898	.50
230	Vindicator, Con., g.	Colo..	1,500,000	1,065,000	1	161,000	465,500	July.. 1900	.05
231	War Eagle Con., g. s. c.	B. C..	2,000,000	1,750,000	1	52,500	545,250	Feb.. 1900	.01½
232	What Cheer, z.	Mo...	225,000	22,500	10	9,000	11,250	May.. 1900	.20
233	Wolverine, c.	Mich.	1,500,000	60,000	25	240,000	510,000	Oct.. 1900	2.00
234	Work, g.	Colo..	1,500,000	1,500,000	1	.....	.....	.....	.....
235	Yellow Aster, g.	Cal...	1,000,000	100,000	10	110,000	429,416	Aug.. 1900	.10
236	Ymir, g.	B.Col	1,000,000	125,000	5	.....	30,000	Nov.. 1899	.24

G., Gold. S., Silver. L., Lead. C., Copper. Z., Zinc. Q., Quicksilver. I., Iron. This table is corrected up to Sept. 17th. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

Abrasives—	Cust. Meas.	Price.
Carborundum, f.o.b. Niagara Falls, Powd., F. FF. FFF	lb.	$0.10
Minute No. 1	"	.15
No. 15	"	1.00
Corundum, N. C.	"	.07@.10
Chester, Mass.	"	.04½@.05
Crushed Steel, f. o. b. Pittsburg	"	.05½
Emery, Turkish flour, in kegs	"	.03
Grains, in kegs	"	.04½@.05
Naxos flour, in kegs	"	.03
Grains, in kegs	"	.05
Chester flour, in kegs.	"	.03
Grains, in kegs	"	.04½@.05
Peekskill flour, in kegs	"	.01¾
Grains, in kegs.	"	.02½
Crude, ex-ship, N. Y.:		
Kuluk (Turkey)	lg. ton	22.00@24.00
Abbott (Turkey)	"	26.50@30.00
Naxos (Greek) h. gr.	"	32.00
Pumice Stone, Am. powd.	lb.	.01@.02
Italian, powdered	"	.01½
Lump, per quality	"	.04@.40
Rottenstone, ground	"	.02½@.03
Lump, per quality	"	.05@.14
Rouge, per quality	"	.10@.30
Steel Emery, f.o.b. Pittsburg	"	.07
Acids—Acetic, 30% pure	100 lbs.	3.50
30% ch. pure	"	6.00
80% pure	"	7.50
Benzoic, English	oz.	.13
German	lb.	.45
Boracic, cryst	"	.10½
Powdered	"	.11
Carbolic, crude, 60%	gal.	.27
Cryst. 37% drums	lb.	.23
Liquid, 95%	gal.	.45
Carbonic, liquid gas	lb.	.12½
Chromic, crude	"	.20
Chem. pure	"	.50
Hydrochloric, ch. pure	"	.07
Hydrofluoric, 36%	"	.03
48%	"	.05
Best	"	.25
Nitric, chem. pure	"	.09
Sulphuric, chem. pure	"	.07
Sulphurous, liquid anhy.	"	.08
Tartaric, cryst	"	.31½
Powder	"	.32
Alcohol—Grain	gal.	2.43
Refined wood, 95@97%	"	.75@.80
Purified	"	1.50
Alum—Lump	100 lbs.	1.75
Ground	"	1.85
Powdered	"	3.00
Chrome, com'l	"	2.75@3.00
Aluminum—Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Hydrated	100 lbs.	2.60
Sulphate, pure	"	1.50@1.75
Com'l	"	1.15@1.30
Ammonia—Aqua, 16°	lb.	.03
18°	"	.03¼
20°	"	.03¾
26°	"	.05¼
Ammonium—		
Bromide, pure	"	.52@.53
Carbonate lump	"	.08¼@.08½
Powdered	"	.09¼@.09½
Muriate, gran.	"	.06½
Lump	"	.09¼
Nitrate, white, pure (99%)	"	.10½
Phosphate, com'l	"	.12
Chem. pure	"	.60
Antimony—Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¾
Best	"	.08½
Oxide, com'l white, 95%	"	.09½
Com'l white, 99%	"	.12
Com'l gray	"	.07
Sulphuret, com'l	"	.16
Arsenic—White	"	.04½@.04⅝
Red	"	.07¼@.07¾
Asphaltum—		
Ventura, Cal.	sh. ton	32.00
Cuban	lb.	.01½@.03½
Egyptian, crude	"	.05½@.06
Trinidad, refined	lg. ton	35.00
San Valentino (Italian)	"	15.00
Seyssel (French) mastic	sh. ton	20.00
Gilsonite, Utah, ordinary	lb.	.03
Select	"	.03¾
Barium—Carbonate, Lump, 80@90%	sh. ton	25.00@27.50
92@98%	"	26.00@29.00
Powdered, 80@90%	lb.	.01¾@.02
Chloride, com'l	"	.02@.02¼
Chem. pure cryst	"	.05
Nitrate, powdered	"	.06
Oxide, com'l, hyd. cryst	"	.18
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphate	"	.01
Barytes—		
Am. Cr., No. 1	sh. ton	9.00
Crude, No. 2	"	8.00
Crude, No. 3	"	7.75
German, gray	"	14.50
Snow white	"	17.50
Bauxite—Ga. mines: 1st grade	lg. ton.	5.00
Second grade	"	4.25@4.50
Ala., f.o.b., 1st grade	"	5.00
Second grade	"	4.25@4.50
Bismuth—Subnitrate	lb	1.75
Subcarbonate	"	1.95
Bitumen, "B"	"	.03½
"A"	"	.05
"A" and "B"	"	.04½
Bone Ash	"	02¾@.03½

	Cust. Meas.	Price.
Borax	lb.	$ .07¼@.07½
Calcined	"	.25
Bromine	"	.40
Cadmium—Metallic	"	1.40
Sulphate	100 lbs.	2.00@2.50
Calcium—Acetate, gray	"	1.55
" brown	"	1.10
Carbide, ton lots, f. o. b. Niagara Falls, N.Y.	sh. ton	75.00
Carbonate, ppt.	lb.	.05
Chloride, com'l	100 lbs.	.90
Best	"	1.00
Sulphite	lb.	.05
Cement—		
Portland, Am.	400 lbs.	bbl. 1.50@2.00
Belgium	"	" 1.95@2.20
English	"	" 2.45@2.55
German	"	" 2.30@2.70
"Rosendale," 300 lbs.	"	" .95
Sand cement, 400 lbs.	"	" 1.55@1.95
Slag cement, imported.	"	" 1.65
Ceresine—		
Orange and Yellow	lb.	.11½
White	"	.13½
Chalk—Lump, bulk	sh. ton	2.15
Ppt. per quality	lb.	.04@.07
Chlorine—Liquid	"	.30
Water	"	.15
Chrome Ore—		
(50% ch.) ex ship, N. Y.	lg. ton	22.00
Sand, f.o.b. Baltimore	"	33.00
Bricks, f.o.b., Pittsburg. M		175.00
Clay, China—Am. com., ex-dock, N. Y.	lg ton	8.00
Am. best, ex-dock, N. Y.	"	9.00
English, common	"	12 00
Best grade	"	17 00
Fire Clay, ord.	sh. ton	4.00
Best	"	5.75
Slip Clay	"	5.00
Coal Tar Pitch	gal.	.08
Cobalt—Carbonate	lb.	1.75
Nitrate	"	1.50
Oxide—Black	"	2.26@2.36
Gray	"	2.28@2.40
Smalt, blue ordinary	"	.25
Best	"	.30
Copperas	100 lbs.	72½
Copper—Carbonate	lb.	.18
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide, com'l	"	.19
Cream of Tartar—Crys.	"	.22¼@.22¾
Powdered	"	.23¼
Cryolite	"	.06½
Explosives—		
Blasting powder, A. 25 lb.	keg	2.50
Blasting powder, B.	"	1.25
"Rackarock," A.	lb.	.25
"Rackarock," B.	"	.18
Judson R.R. powder	"	.10
Dynamite (20% nitro-glycerine)	"	.13
(30% nitro-glycerine)	"	.14
(40% nitro-glycerine)	"	.15
(50% nitro-glycerine)	"	.16½
(60% nitro-glycerine)	"	.18
(75% nitro-glycerine)	"	.21
Glycerine for nitro (32 2-10° Be.)	"	.14@.14½
Feldspar—Ground	sh. ton	8.00@9.00
Fluorspar—In bulk.		
Am. lump, 1st grade	"	12.40
2d grade	"	11.90
Gravel & crushed, 1st g	"	11.40
2d grade	"	10.90
Ground, 1st grade	"	15.90
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump.	100 lbs.	.75
Powdered	"	.85
Refined lump	"	1.25
Graphite—Am. f. o. b. Providence, R.I. lump	sh. ton	8.00
Pulverized	"	30.00
German, lump	lb.	.01¼
Pulverized	"	.01½@.02
Ceylon, common	"	.03¾
Pulverized	"	.06@.10
Italian, pulv	"	.01¼
Gypsum—Ground	sh. ton	8.00@8.50
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—Ground, American, best	"	20.00
French	"	37.50
German	"	40.00
Iodine—Crude	100 lbs.	2.45
Iron—Muriate	lb.	.05
Nitrate, com'l	"	.01½
True	"	.03½
Oxide, pure copperas col	"	.05@.10
Purple-brown	"	.02
Venetian red	"	.01@.01½
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white	lb.	.07
Com'l, broken	"	.06½
Brown	"	.05½
Nitrate, com'l	"	.06½
" gran	"	.8¼
Lime—Com., ab. 250 lbs	bbl.	.60
Finishing	"	.70
Magnesite—Greece.		
Crude (95%)	lg. ton	7.00@7.50
Calcined	sh. ton	17.50
Bricks	M.	165.00
Am. Bricks, f.o.b., Pittsburg	"	175.00
Magnesium—		
Carbonate, light, fine pd	lb.	.03¾
Blocks	"	.06@.09
Chloride, com'l	"	.01¾
Fused	"	.20

Magnesium—	Cust. Meas.	Price.
Nitrate	lb.	$0.60
Sulphate	"	.01@.01¼
Manganese—Crude-pow'd 70@75% binoxide	"	.01¼@.01½
Crude, pow'd 75@85% binoxide	"	.01½@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.02¾@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%, Foreign	unit	.26
Domestic	"	.30
Marble—Flour	sh. ton	5.50@6.00
Mercury—Bichloride	lb.	.74
Mica—N. Y. gr'nd, coarse	"	.04@.04½
Fine	"	.05@.06
Sheets, N. C., 2x4 in	"	.30
3x3 in	"	.80
3x4 in	"	1.50
4x4 in	"	2.00
6x6 in	"	3.00
Scrap, f.o.b., Dillsboro, N. C.	sh. ton.	25.00
Mineral Wool—		
Slag, ordinary	sh. ton	20.00
Selected	"	25.00
Rock, ordinary	"	32.00
Selected	"	40.00
Monazite—92%	"	140.00
Nickel—Oxide, No. 1	lb.	1.00
No. 2	"	.60
Sulphate	"	.20@.21
Oils—Black, reduced 29 gr.: 25@30 cold test	gal.	.09¾@.10¼
15, cold test	"	.10¾@.11¼
Zero	"	.11¾@.12¾
Summer	"	.09¾@.09¾
Cylinder, dark steam ref	"	.08¾@.10¾
Dark filtered	"	.11¾@.16¾
Light filtered	"	.14¾@.17¾
Extra cold test	"	.21¾@.26¼
Gasoline, 86°@90°	"	.16@.21
Naphtha, crude 68@72°	bbl.	9.55
"Stove"	gal.	.12
Linseed, domestic raw	"	.60@.63
Boiled	"	.65
Calcutta, raw	"	.76
Graphite, lubricating, Am. dry	lb.	.10
In oil	"	.12
Axle grease	"	.08½@.10
Wood grease	"	.05@.06
Ozokerite—Foreign	"	.12
Paints and Colors—		
Chrome green, common	"	.05
Pure	"	.20
Yellow, common	"	.10
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack, com'l	lb.	.03
Refined	"	.07
Litharge, Am. powd.	"	.05½@.06
English flake	"	.09½
Glassmakers, Foreign	"	.06½
Metallic, brown	sh. ton	19.00
Red	"	16.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾
French, washed	"	.01¼@.02½
Orange mineral, Am.	"	.07¾@.08
Foreign, as to make	"	.08@.10½
Paris green, pure, bulk	"	.12
Red lead, American	"	.06½
Foreign	"	.08¼
Shellac, "D. C."	"	.28
Native	"	.15
Turpentine, spirits	gal.	.41½@.42
Ultramarine, best	lb.	.25
Vermilion, Amer. lead.	"	14@.15
Quicksilver, bulk	"	.64
English, imported	"	.80
English, domestic	"	.74
White lead, Am., dry	"	.05¾
English	"	.06½@.08¾
Whiting, common	100 lbs.	.40
Gilders	"	.54
Zinc white, Am., ex. dry	lb.	.04¼@.04¾
American, red seal	"	.07¼@.07¾
Green seal	"	.07¾@.08
Foreign, red seal, dry	"	.06¼@.08¼
Green seal, dry	"	.06¾@.08⅝
Potash—Caustic, ord	"	.04½@.05
Elect. (90%)	"	.06½
Potassium—		
Bicarbonate cryst	"	.08¼
Powdered or gran	"	.14
Bichromate, Am.	"	.08½
Scotch	"	.09
Carbonate, hydrated	"	.04½
Calcined	"	.04½
Chromate	"	.35
Cyanide (98@99%)	"	.29@.30
Iodide, bulk	"	2.30
Permanganate, pure cr.	"	.12½
Prussiate, yellow	"	.17¾@.18
Red	"	.37
Silicate	"	.06
Sulphide, com'l	"	.10
Quartz—(See Silica).		
Rosin—		
Com. strained (280 lbs.)	bbl.	1.55
Best strained	"	3.05
Medium	"	1.95
Salt—		
N Y com. fine	sh. ton	2.00
N. Y. agricultural	"	1.50
Saltpeter—		
Crude	100 lbs.	3.60
Refined	"	4.00
Silica—Best foreign	lg. ton	10 00@11.00
Ground quartz, ord	sh. ton	6.00@8.00
Best	"	12.00@13.00
Lump quartz	"	2.50@4.00
Glass sand	"	2.75

Silver—	Cust. Meas.	Price.
Chloride	oz.	$0.65
Nitrate	"	.40
Oxide	"	.85@1.10
Slate—Ground, black	sh. ton	7.50@8.75
Ground, red and olive.	"	20.00
Sodium—Acetate, com'l.	lb.	.04¾
Bichromate	"	.06½
Chlorate, com'l	"	.08¾@.08⅞
Hyposulphite, Am.	100 lbs.	1.75
German	"	2.10@2.20
Nitrite, 96@98%	lb.	.08
Peroxide	"	.45
Phosphate	"	.02½
Prussiate	"	.14½
Silicate, conc	"	.05
com'l	"	.02¼
Sulphate, com'l	100 lbs.	.85
Gran., puri'd	lb.	.03
Sulphide	"	.01¾
Sulphite	"	.02½
Tungstate, com'l	"	.35
Strontium—Nitrate	"	.06½@.06¾
Sulphur—Roll	100 lbs.	1.75
Flour	"	1.80
Flowers, sublimed	"	2.05
Talc—N. C., 1st grade	sh. ton	13.75
N. Y., Fibrous	"	8.00@9.00
French, best	100 lbs.	1.25
Italian, best	"	1.75
Tar—Regular	bbl.	2.20@2.25
Oil barrels	"	4.15@4.30
Tin—Bichloride	lb.	.09½@.10
Crystals	"	.24½
Muriate, 36°	"	.09
52°	"	.15
Oxide, white, ch. pure	"	.41
Uranium—Oxide	"	2.25@3.00
Zinc—Metallic, ch. pure	"	.07¼@.09⅝
Carbonate	"	.15
Chloride	"	.05
Dust	"	.07¾@.07⅞
Sulphate	"	.02@.02¼

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5.71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N Y.)	oz.	2.25
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Cadmium—Sticks	kg.	1.55
Sheets	"	2.83
Granulated	"	2 38
Powder	"	1.90
Calcium—Elect	grm.	4.28
Cerium—Fused	"	2.02
Nitrate (N. Y.)	lb.	17.00
Chromium—Fused, Elect.	kg.	5.95
Pure powder 95%	"	1.79
Chem. pure cryst	grm.	.20
Cobalt—(98@99%)	kg.	6 66@8.33
Pure	"	30.94
Didymium—Powd.	grm.	3 81
Fused, Elect.	"	5.47
Nitrate (N. Y.)	lb.	60.00
Erbium	grm.	3.09
Nitrate (N. Y.)	lb.	62.00
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.75
Indium	grm.	3.57
Iridium—Fused	"	1.07
Powder	"	.95
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Nitrate (N. Y.)	oz.	3.50
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Magnesium—Ingot	kg.	6.19
In wire or ribbon	"	9.99
Powdered	"	5.95@7.14
Sheet	"	9.04
Molybdenum—Fused	grm.	.15
Powder, 95%	kg.	2.62
Niobium	grm.	3.81
Osmium	"	.94
Palladium—Wire	"	.86
Sponge	"	62
Potassium—In balls	kg.	17.85
Rhodium	grm.	2.38
Rubidium—Pure	"	4.76
Ruthenium—Powder	"	2.38
Rutile—Crude	kg.	.43
Selenium—Com'l powder	"	26 28
Sublimed powder	"	35.70
Sticks	"	28.56
Silicium—Com'l	"	28.56
Chem. pure crystals	"	59.50
Amorphous	"	27.36
Sodium (N. Y.)	lb.	.65
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	3.57
Tellurium—Ch. p. sticks.	kg.	107.00
Chem. pure powder	"	83.30
Thallium	"	26.18
Thorium—Nitrate 49@50% (N. Y.)	lb.	4.75
Titanium	kg.	47.60
Uranium	"	190.40
Nitrate (N. Y.)	oz.	.25
Wolfram—Fused, elect.	kg.	238.00
Powder, 95@98%	"	1.43
Chem. pure powder	"	6.43
Yttrium	grm.	3 33
Nitrate (N. Y.)	oz.	62.00
Zirconium—Com'l	kg.	119.00
Nitrate (N. Y.)	lb.	9.00

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to Sept. 27. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.